AMERICAN

RAILROAD JOURNAL.

STEAM NAVIGATION, COMMERCE, MINING, MANUFACTURES.

HENRY V. POOR, *Editor.*

SATURDAY, DECEMBER 5, 1857.

Second Quarto Series, Vol. XIII., No. 49.—Whole No. 1,129, Vol. XXX.

ESTABLISHED IN 1831.

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PUBLISHED WEEKLY, BY

JOHN H. SCHULTZ & CO.

Front Room, Third Floor,

No. 9 Spruce Street.

ROOFING.

Plate 4

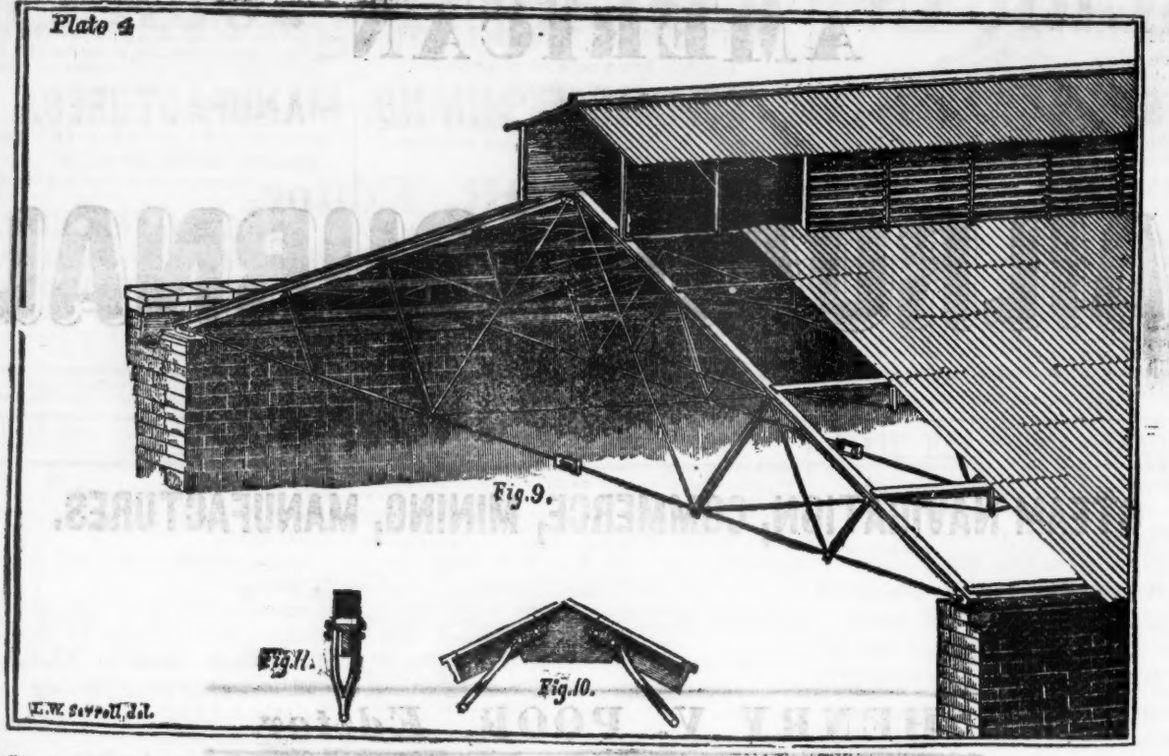

Fig.9.

Fig.11.

Fig.10.

L.W. Sayrell, del.

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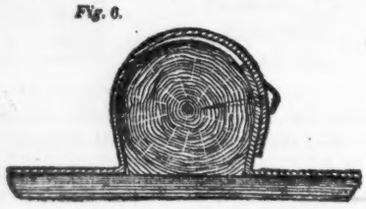
Fig. 6.



½ full size.

Fig. 7.

½ full size.

Fig. 8.

½ full size.

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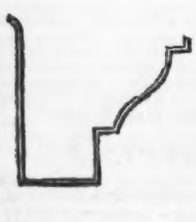

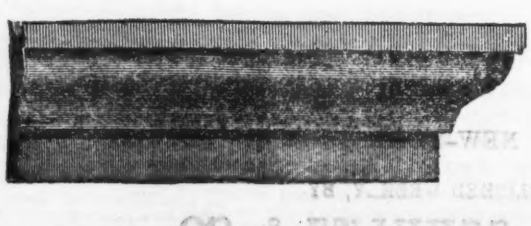

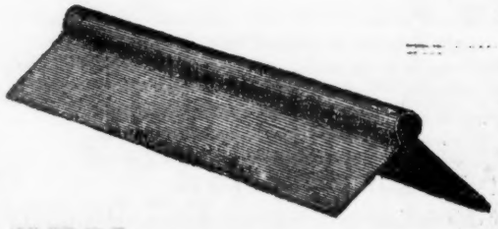

MARSHALL LEFFERTS & BROTHER,

Corner of Broad and Beaver sts., NEW YORK.

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American Railroad Journal.

PUBLISHED BY J. H. SCHULTZ & CO. No. 9 SPRUCE ST.

New York, Saturday, December 5, 1857.

(For the American Railroad Journal.)

To the Railway Directors, Engineers, Superintendents and Shareholders of the Railways of the United States.

GENTLEMEN,—It is pretty generally admitted, that the *wear and tear* of the permanent way and rolling stock is greater on the railroads of this than any other country in the world.

Various causes have been assigned for this. Among others, the inadequacy of the drainage and ballasting; the numerous curves and heavy grades; the want of accuracy in laying down the rails (particularly on curves,) and the inefficiency of the repairs constantly needed. Besides these there are the elements to contend with. The rains of heaven saturate the earth. The frosts cause it to expand and uplift the works of man, and thus the *permanent way* is made a mockery of, as having no permanency at all.

Now, gentlemen, it is not long since the "American System" of laying down the rails was immeasurably extolled in Europe, and the continuous bearing was to be given up there.

Most of the causes of depreciation enumerated also exist in Europe, and some of them even to a far greater extent than here. Yet the fact undoubtedly remains, that the consumption of fuel, the wear and tear of the road and the rolling stock is, as stated, *greater here than in any other country in the world.*

In the present state of the country, with trade and commerce paralyzed, is this a time for inquiry, resulting probably in immediate outlay? I reply that this is precisely the time, and if you neglect it now, you will have to suffer hereafter, more than your present experience can possibly realize.

Navigation is about to close while the products of the teeming West are yet *in situ*, and before it again opens, every railway in the country will inevitably be tested, far beyond what it has ever been.

Now, gentlemen, are you prepared for this? Are you prepared with new and efficient rolling stock, with roads and machines in perfect repair, and a well arranged system to keep them so? No, you are not, as a body, prepared for anything of the kind, no more than if nothing of what I have told you was going to happen. And yet it will happen; it is inevitable.

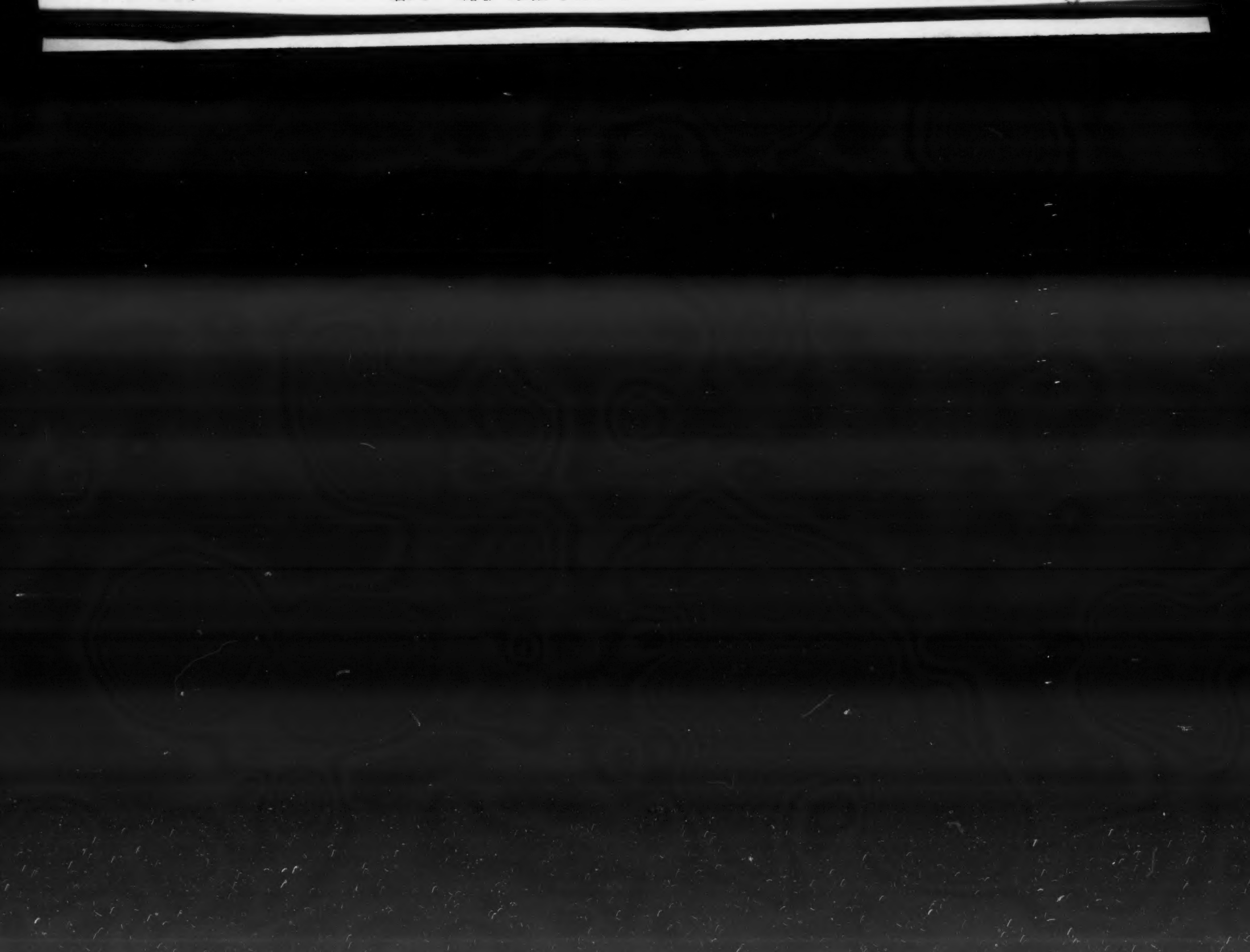
Look out then for actions for damages for broken limbs, lives lost, baggage smashed, rails torn up and a general crash among the rolling stock. This is no fiction. It has happened before for want of care and prudence, and it will happen again; for, like the Bourbons, we have *learned nothing*, but unlike them, we have *forgotten everything*. And what are the consequences of all these things. An enormous cost of working all our railways, far exceeding the cost of working those of Europe. Will any one say that the causes assigned are in all cases sufficient to account for this effect? I am sure that no competent authority can be found to make any such assertion.

Our boilers will make as good steam as any others; our locomotives consume it quite as economically; and as there is nothing between them and the rails, except the wheels which carry all, it must be that there is something wrong, "*something rotten.*" There is indeed nowhere else to look for the causes of our difficulties.

Now, what are the necessary conditions of a wheel to run perfectly true? The answer is, obviously, that the wheel also must be perfect—that is to say, a perfect cylinder. This, however, only applies to a wheel running upon a straight line; for when the line is curved, the wheel must be coned. In this case, the wheel, in passing from the straight to the curved part, necessarily adjusts itself to the increased length of the outer rail by running upon it with that part of its periphery which is nearer the base of the cones, where the diameter is greater. At the same time the fellow wheel runs upon the periphery nearer its apex, where the diameter is less. Whilst this adjustment is going on, the conical tread of the wheel is running obliquely to its base wherever it touches the rail, in consequence of the lateral movement of the axle and wheels in an outward direction. This lateral movement always takes place whenever there is a change in the direction of the line, and the consequence is, that the pathway on every wheel where it touches the rail is oval instead of being perfectly round. And therefore, when the minor axis comes down upon the rail, it strikes it like a hammer. The inner wheel strikes first when it comes upon the rail at the smallest part of its diameter required to adjust itself according to the nature of the curve. The outer wheel, in like manner, strikes the rail when it leaves the curve, because it then comes upon the smaller part of its conical tread. This, however, only applies to where the rail is straight after leaving a circular curve, for where another and an opposing curve commences immediately, the blow is delayed.

It will now readily appear, that the pathway upon the conical tread of the wheel when passing round such a curve must necessarily be spiral—(a helix in fact)—which suggests that the curve instead of being a circular one as is usual, should be an hyperbole, and then the *blow* of the inner wheel, which will be upon the apex of the curve, is the slightest and inappreciable, while the *blow* upon the outer rail is annihilated. I am aware that the parabolic curve has been proposed, but singular enough, that only increases the evil; and yet it has been extolled as a great improvement and may ere yet attain to as much celebrity as the elevating of the outer rail.

No curve which does not admit of an asymptote should be applied to a railway. For it is not the curve itself which causes the danger, but the abrupt flexure from a straight line. If the curve commences abruptly, every wheel goes bumping over it. If the curve is "eased off," it partakes imperfectly of the hyperbolic curve with the line parallel to its asymptote.



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If now the outer rail is depressed so as to favor, by gravitation, the lateral movement of the axles and wheels, and keep the platform with which any two axles are connected, perfectly horizontal, all that the circumstances of the case admit of, has been done toward attaining perfection. I am writing about a railway such as never has been seen, and probably never will be—one nearly perfect. Nevertheless it is and must be the standard by which all should be judged. If on the other hand, as is the practice, the outer rail is elevated, then gravitation is thrown in the wrong direction, and the platform, and consequently, the axles cross-wind, and the journals and boxes become heated and worn, for the purpose of overcoming an imaginary centrifugal force which does not exist, and even if it did, is of no account in comparison with the evils resulting from an attempt to overcome it. Practically, however, the raising of the inner rail is entirely unnecessary, for no rails have ever yet been laid which did not present a greater difference in any twenty yards of their length than the sharpest curve should require: indeed, it would be too great a happiness to find one that did not deviate ten times further from perfection. Deviate if you must, but do not talk nonsense about practical experience being at variance with mathematical laws. The perfection of a railway rests upon the same immutable principles as that of the most delicate machinery, and the only question to be propounded is, will it pay to make it as perfect?

The locomotive partakes largely of such perfection; but the rolling stock is not constructed upon any such principles; and as to the permanent way, the very best of them cannot be said to be constructed upon any principle at all. For instance, there are some curves in the United States, which have the outer rail elevated six inches higher than the inner one. To talk about "calculations" in such a case as this, is simply absurd. The fact is, each track-layer may or may not have a rule of his own, and does as he has a mind to about it, and that rule is just as good as any other, for no rule will answer except for one speed only.

To show the effect of the perfect trueness of wheels, I will quote from the Report of Mr. Dedag, Director of the Venetian, Lombardo and Central Italy Railway. "The locomotive *Piave* is furnished with cast steel tires from the manufactory of Mr. FRIED. KRUPP of Essen, (Rhenish Prussia). The locomotive has run 19,900 miles from October 26th, 1854, to February 4th, 1856. The driving wheels (5 ft. 10 in. diameter) were worn .059 inch, and the coupled wheels .079 inch. The tires were then turned to an equal diameter, since which time, up to the end of October, 1856, the same locomotive has run 13,600 miles, but thus far the tires have shown *no wear*. The wear shown in the first period of service, although different on the different tires, was uniform on the periphery of the same tire."

The testimony of L. Hellig of the Augsburg, (Bavaria), Railway, is to the effect that similar tires were placed upon the wheels of the locomotive *Rosenheim*, April 23d, 1855, and *Friesburg*, May 17th of the same year, and that the first has run 15,960 miles, without showing any wear. Of the other which ran 15,000 miles, he says, "it is small, and everywhere equal. They only require turning, *at most*, once a year, while those of iron must be turned once in every 8 or 10 weeks."

That the smallness of the wear is attributable to the accuracy of the tire, as well as to the excellence of its quality, is proved in the first case by the great superiority which they exhibited after being turned *up true upon their axles*; for notwithstanding the utmost care in heating and cooling the tires equally, allowing neither too much nor too little for shrinkage, they are better, (after having been used some time) when again turned up.

To show the effect of curves, it may not be uninteresting to refer to the testimony of Mr. Nowotny, Engineer in Chief of the Saxon-Bavaria Railway. First with iron tires. This railway is divided into two sections. The first section is 49 miles long, with maximum grades of 1 in 200. 20 per cent. of curves, with radii of 731 yards.

The second section is 556 miles long with maximum grades of 1 in 100—56 per cent. of curves, with radii of 615 yards.

The same locomotives run upon both sections. The wheels were 38.8 inches diameter, and 11 ft. 2¾ in. apart. Each one carried 8,275 lbs. The "fine grained" iron tires were 2.058 inches thick, and were worn down to .771 inch, having lost 1.287 inch of their original thickness—one set by running 25,250 miles on the first section, and another set by running 11,773 miles on the second section. It is but reasonable to suppose, that the wear of the tires is a fair exponent, not only of the wear of the rails and locomotive machinery, but also of the quantity of fuel consumed. If this be so, too much importance cannot be attached to the following experiment.

The "fine grained" iron tires were removed and on the 18th Nov. 1854, "the tires of *cast steel* from the manufactory of M. L. Krupp were placed upon the front drivers, *the more promptly to arrive at a result* with the same weight, and doing services only on the 2nd section."

These tires were but 1.286 inch thick and were worn down to .771 inch, having lost .515 inch in running 34,196 miles.

Comparing the iron with the cast steel tires, gives the following result:

	Thickness of Tires.—Inches.			*Distance run. Miles.*
	NEW.	OLD.	LOSS.	
Fine grained iron	2.058	.771	1.287	11.733
Cast steel.....	1.286	.771	.515	34.196

The cast steel tires, therefore, lost but two-fifths as much as the iron ones, while the distances run by them was nearly three times greater. In other words, the cast steel run 7¼ times the distance of the iron tires, with the same wear. Again, iron tires will run 915 miles to become reduced one-tenth of an inch in thickness, but cast steel ones will run 6,640 miles before being reduced as much. Nevertheless, this amount of wear is enormous, and far beyond the ordinary average, in consequence of the heavy grades and numerous curves.

Mendelsohn, Engineer in Chief of the Guillaume (Silesi Prusse) Railway, reports an express train to have run 5,839 miles, at 35 miles per hour, making six revolutions per second, each wheel carrying 12,685 lbs., without showing any wear on cast steel tires, although previously with iron tires the wear had been "extraordinary." The grades are 1 in 45, with curves having radii of 350 yards. A freight locomotive on the same line ran 7,000 miles without showing any wear. Other locomotives made equally favorable reports; particularly the locomotive "Vienna-Raab," running over the Sommering, one of the most stupendous lines of railways on the Continent, with curves of 700 feet radii, and grades of 1 in 40; this locomotive drew 160 tons besides its own weight, upon wet rails, showing the adhesion of the cast steel tires to be equal to that of iron. (See Report of "J. Haswell," Director, dated Vienna, April 10, 1855.) Of twelve other locomotives working on the Austrian lines, W. ENGERTH, the General Director, reports, that they run from 12,300 to 13,800 miles each, with a wear of from .15748 inch to .03937 inch, which is equal to running 7,810 miles in the one case, and 9,652 miles in the other, with a loss of only one tenth of an inch of the cast steel tires, on the same railway, with its severe curves and heavy grades, and no less heavy engines, with 29,120 lbs. on the driving wheels. It is stated in the "Civil Eng. and Architects Journal," (Vol. 19, p. 173,) "that no engine in England would alone work the Sommering traffic"—not even the "Mammoth," on the Great Western Railway.

The locomotive "Dussel," on the Dusseldorf and Elberfeld Railway, ran 14,730 miles, with 11,075 lbs. on each wheel tired with cast steel. "The wear was .059 inch everywhere uniform, while the flanges were scarcely perceptibly worn. This is from the report of the Superintendent, LANSMANN, and dated Dusseldorf, Sept. 27, 1856, certified by WILHELM, the Engineer in Chief.

This last report shows the rate of wear to be one-tenth of an inch of the cast steel tire for 24,056 miles traveled, on a line by no means unexceptionable as to grades and curves.

I will give one other extract for comparison between iron and steel tires, from the *Journal de Chemins de Fer*, (No. 7, 14 Fevrier, 1855.) In January, 1855, the Cologne and Minden Railway Company caused a pair of wrought tires, 2 inches thick and 3 feet diameter, to be run 6,214 miles, when it was found that they were worn "1 lignes," (rhenanes.)

A pair of shear steel tires of the same diameter, but only 1 1-12 inch thick, were also submitted to the same test, and worn down "1 ligne" also, by running 10,688 miles.

A pair of *cast steel* tires, 1 1-12 inch thick, and 3 feet diameter, were placed under precisely similar circumstances, and worn down "1 ligne" by running 37,282 miles, or just 6 times as far as the iron tires ran, which gives 43,446 miles to be run to wear away one-tenth of an inch of the cast steel tires. This is believed to be rather over than under the average wear, for M. Krupp has guaranteed that a pair of his cast steel tires shall run 60,000 miles to have one-tenth of an inch of the metal worn away.

These tires are made out of a solid bar of cast steel without welding, which is one cause of their freedom from accidents to which welded tires are always liable—for it is impossible to insure perfection in a weld; that is to say, that the welded part shall be exactly as hard and no harder; also exactly as soft and no softer, than the other part, and that every part shall be uniform. If these conditions are not attained, the tire will wear unequally; and the fact notoriously is, that they do

wear, and that whether hard or soft, it makes no difference. It is the *unequal wear* alone which grinds away the tire, abrades the rail, hammers down the permanent way, shakes the locomotive to pieces, wastes the fuel, and knocks the dividend clear out of time.

I must now say something, however reluctantly, about the disgraceful wheels universally used in this, but in no other civilized country in the world. I mean the *chilled* wheels. The inequalities of these wheels are almost incredible. They are not uniform in hardness, nor in their diameters, and there is no uniformity of their tread. The consequence is, that they wear themselves away very rapidly, and must, as a matter of course, grind away the rail which grinds them. That all this grinding cannot be done for nothing, is too self-evident to require even this affirmation; and if any evidence were wanting as to the cause being as I have stated, other than examining the wheels themselves, it may be found in the advertisements of manufacturers, who inform the reader that all chilled wheels, excepting only theirs, (for which they have obtained letters patent,) are liable to break and become deranged; and doubtless they are all correct in the statements, for the defect is radical and fundamental, and cannot be overcome. So sure as anything metallic shrinks 1 in 100, so sure is it to shrink unequally, and warp and twist more or less. That these wheels frequently break and cause immense destruction of life and property is admitted; and if they are so uncertain that no inspection can determine whether they are safe to run even a single hour, it must necessarily follow that the time which they will endure is as uncertain also, and accordingly we find that of those which do not break, but run their life out, are completely worn out in three months, while others are reported to have lasted fifteen months, on the same railway and with the same work.

It is difficult to guess at the average life of a *chilled* wheel, but on account of danger and uncertainty, it may be set down in the comparison at one year, after having run 12,500 miles with average loads.

Now, I find that on the city horse railways, although the wheels do not probably carry on the average more than one ton per wheel, they wear out in about the same time, and run about the same distance.

In England the average life of a well traveled rail is 20 years, with ordinary wear—such as is produced by wrought iron tires, according to Captain Huish. The Belgian Engineer, M. Belpare, calculated that every ton which passed over 1,000 miles of railway, abraded it 1½ lbs.

A cast steel tire will doubtless run on the average at least 250,000 miles, thus wearing out twenty chilled wheels. Further it will wear out 5 iron, and 3½ of hardened shear steel.

The chilled wheels we have calculated to run 12,500 miles before being worn out or become too dangerous to use further; and if we allow them to have worn down on the average 2‴, as is the average wear of iron and steel tires before they require turning, we shall find that for the same amount of wear, the cast steel tires will have run 50,000, the hardened shear steel 14,285, the iron 8,333, and the chilled wheel 12,500 miles, respectively.

The steel wheels are usually turned up 4 times, and run 5 times, while the iron ones are turned up 5, and run 6 times.

A cast iron chilled wheel probably grinds up about its own weight of rail in its lifetime, and damages the machinery perhaps ten times its own cost, showing the folly of buying a thing merely because it is *cheap*.

According to Dr. Lardner, the Belgian calculation amounts to this—that 360,000 trains passing over the railroad will wear it out in 20 years. The English calculation is—that 365,000 trains will wear it out in 20 years.

If the trains average about the same weight, the coincidence of the numbers is very remarkable, inasmuch as the calculations were made on entirely different principles, and without any reference to each other; at the same time the difference in the amount of the traffic is remarkable also.

The life of a rail does not, of course, depend entirely upon the weight which passes over it, for a portion of it will rust away from mere exposure, and therefore the rail which is most used should allow of the greatest amount of traffic; and curious enough, this is absolutely indicated to be 1.388 per cent.

These calculations are necessarily imperfect, but as there is nothing better to be had, we must make the most of them, and accordingly, if we take the average number of the trains which leave New York, on the Hudson River Railway, at 25 per day, or half the number calculated upon by Capt. Huish, we shall have forty years as the average life of the rail, all other things being equal.

Now if we suppose the abrasion of the rail in all cases to be in proportion to that of the wheel, we shall undoubtedly give a great advantage in favor of the chilled wheel, for it appears that the iron tires will run but ⅓ (8333 miles) the distance run by the chilled wheels before the latter are worn out, and both worn equally, (1-6 inch.) This calculation brings the life of the rail up to 60 years with chilled wheels, and as the abrasion by them is four times as much as by cast steel, the use of the latter implies the life of the rail to be increased to 240 years. We know, however, that the Hudson River rails have a poor chance of living 60 or even 20 years—but allowing the latter time as the life of the rail, it indicates that the hardened tread of the chilled wheel has increased its rail grinding propensities three times or twice that of the ordinary iron tire, and *eight times* as much as the *cast steel* tire, which is not hardened at all; for its power to resist abrasion depends not upon that extreme source of danger, particularly in very cold weather, but upon its own intrinsic *force of cohesion* and *toughness*, which is not possessed by any other kind of steel known.

In conclusion, and as a summing up of a somewhat difficult subject, arising from the absence of sufficient data, I conclude, that *a cast steel wheel will wear out twenty chilled wheels, with only one fourth as much abrasion of itself, and one-eighth as much to the rail.*

It is universally admitted that the wear of the rail is in proportion to the weight passed over it, and no argument can be required to prove that the tire which wears away the rail must itself suffer proportionate disintegration. But this is not all; for the locomotive power which is expended, must, like all other grinding operations, be proportionate to the work done, and therefore—apart from all mere theories, guess-work, or calculation founded upon imperfect data—we have the undeniable fact, that, after making an allowance for the difference in the diameter of the chilled wheels and cast steel tires, the latter are not abraded one-third as much as the former. The rail must be more worn than the tire, and the wear of the rail is the true exponent of the power required to grind it away, which leaves no doubt in my mind, that at least a saving may be effected to the full extent of my assertion, by leveling the rails across where the outer one is now elevated at the curves, and using the cast steel tires instead of chilled wheels. Now if these tires are really as represented, the very natural inquiry arises as to how many are in operation? Fortunately a well authenticated list of them is at hand, which informs me that from Nov. 15, 1853, to Sept. 2, 1857, or during a period of less than four years, 5,477 cast steel tires have been supplied to different railway companies in Europe, of which no less than 1612, or nearly one third of the whole number, were within the last month, (ending Sept. 4, 1857.)

Another question will also present itself, viz:—how many are running in Great Britain? The same authority gives 98.

It is not to be expected that much publicity will be given in Great Britain to the excellency of their cast steel tires, which conflict with a most powerful interest there, but John Bull will have the best of everything which is to be had for money, and is ordering not only these tires, but also axles of the same materials.

Apropos to these cast steel axles, which are not entirely unknown in the United States, as several have been imported, and two of them have been running about eight years. In that time they have run some 160,000 miles, and according to very good authority, show no wearing away at all. Therefore, the statement of Mr. Allen Sweet, formerly of the New York Central Railway, was no hyperbole, but the simple truth as deduced from the fact above stated, that "he believed *Krupp's Cast Steel Axles* will run *one hundred years*."

I am, gentlemen,
Your very obedient servant,
THOS. PROSSER,
New York, Nov. 27, 1857. *Civil Engineer.*

East Tennessee and Virginia Railroad.

We learn from the Bristol *News*, that Dr. Cunningham, President of the E. T. & Va. Railroad, has returned from the North, and has succeeded in so arranging matters, that the road will be finished to Greeneville in the course of another month, leaving a gap of only some 16 or 18 miles, which will be completed by early Spring. The progress of this road has been exceedingly slow, yet it must be confessed the company has had many difficulties to encounter, and should Dr. C.'s present expectations be realized, he will have successfully accomplished an arduous and embarrassing work.

The Knoxville *Whig*, referring to this road, makes the following remarks:

"We regret to learn that a secret effort is being made to defeat the election of Dr. Cunningham at the next annual meeting of the Board. To him, more than all others together, is East Tennessee indebted for the wonderful success which has attended his efforts, in the face of circumstances absolutely frightful. We hope to hear of his triumphant re-election, and a long enjoyment of the blessings that his intelligence and energy have secured to the people.

Journal of Railroad Law.

COLLISION.—SUIT FOR DAMAGES FOR PERSONAL INJURY.—WAIVER OF NOTICE.

Higgins against *The New York and Harlem Railroad Company.*

This was an action brought by the plaintiff for damages for personal injuries sustained by him in a collision between a train of the defendants and one belonging to the New Haven Railroad Company. The case was first tried at a special term of the Superior Court. On an exception to the ruling of the judge, it was brought on an appeal before the general term, and a decision in affirmance of the one first rendered was given from the full bench by Chief Justice SLOSSON.

The collision occurred by a morning passenger train of the defendants running into a freight train of the latter company. On the trial of the case, evidence was of course given on the point of negligence, and as to whether the collision was clearly the result of the negligence of the defendants or that of the other company. The plaintiff, it appeared, was a commuter upon the road of the defendants, and regularly rode, morning and night. At the time of the collision, he was standing upon the platform of the car. Evidence was given, on the trial, on behalf of the defendant, the company, to show that they had posted upon the doors of the car the notice which is authorized by the act of 1850, "that the company would not be liable for accidents occurring to passengers standing upon the platform". The plaintiff sought to excuse his presence on the platform by showing that the company had not provided sufficient room for their passengers within the cars. The evidence showed very conclusively that the first three cars were full, and had room for seating no more passengers. As to the fourth and fifth cars, which completed the train, the evidence was not so clear. The testimony of some of the witnesses tended to show that there was room in these for several more persons. The evidence of other witnesses was to the contrary. The judge charged the jury, upon the trial, that the company were bound to furnish seat room for their passengers, and that they could not be considered to have furnished seat room unless they were satisfied that the conductor had allowed the plaintiff an opportunity to pass into the rear cars, where he might find room, without endangering himself by attempting to pass in that way, while the train was in motion. The counsel for the plaintiff requested the judge to charge in addition to this, that if the jury were satisfied that the conductor knew that the plaintiff was upon the platform and did not object to his being there, they were to presume that he stayed on the platform by consent of the company. The judge refused to charge according to this request, and for this refusal, the plaintiff excepted. The jury found a verdict for the defendant.

The plaintiff was not entitled to such instruction as he requested, unless it appeared that such notices were not posted, and also that the company did not furnish room. If such notices were duly posted, and there was room within the cars for the accommodation of the plaintiff, the mere fact that the conductor knew of the plaintiff's being upon the platform and did not notify him to remove, could not be considered as any waiver on the part of the company. The charge that the defendants could not be considered as having furnished room, unless the passenger was allowed an opportunity to pass to the rear cars while the train was at rest, we are inclined to think, was just ruling. At all events, it was favorable to the plaintiff. The judgment must be affirmed.

Judgment accordingly.

Recent Experiments on the Temperature of the Earth at Great Depths.

Translated from the French by GEORGE WASHINGTON ALEXANDER, *of the U. S. Naval Engineer Corps.*

U. S. S. F. SUSQUEHANNA, *Spezia, Italy, October 15th*, 1857.

I have often been much interested in the different theories regarding terrestrial heat, and have always inclined to the theory of the *internal fire*, although "*Analyticus*," and another correspondent, writing for the Philadelphia Ledger, advance some ingenious argument to the contrary. On the 10th instant, I was sitting with a friend in a Cafe at Algiers, chatting, and smoking our long chiboques, and condemning a custom where all the pretty girls veiled their charms—very annoying, I assure you, to a curious Yankee; but I can't describe Algiers now. While sitting there, the servant placed in my hand a journal, and among some very interesting articles, I noticed the following, which I translate and send you, trusting that you may deem it worthy of a place in your columns, and it may prove very interesting to those who are interested in the advancement of science.

The variations of temperature, which result from the influence of the seasons, is felt at but a very small depth in the interior of the earth; the temperature from the soil is at a little depth variable according to the situation of the places, and equal to the mean temperature of the locality. But below this mean temperature the heat increases in a ratio as we descend, and the result of the observations made up to this time gives an increase of one degree for each 107 feet of depth. The result of which is, that at about three kilometres below the point of mean temperature we should find already 100°, (centigrade) or that of boiling water, and should the law continue regularly, we should have, at twenty kilometers, 666 degrees, a temperature at which many silici would be in a state of fusion.

Towards the centre of the earth, that is to say, at a depth of 6,366 kilometres, we would have a temperature of 200,000 degrees, a heat of which we can form no idea, and which would not only be capable of melting, but volatizing all bodies. It is, however, hardly probable that the heat increases always uniformly; it is to be believed that there is soon established a *general equilibrium*, and that at a depth of 150 or 200 kilometres there is a uniform temperature of 3,000 or 4,000 degrees, the greatest heat that we can produce, and which nothing can resist. Thus it is highly probable that the interior of the earth is fluid, and that only upon the surface is there a crust of 20 kilometres in thickness.

However, the experiments already made upon the central heat of the earth, leaves yet much to desire, and the works of boring executed at Creuzat, by the process of M. Kind, when examining for coal last year, reached the depth of 800 metres. The opportunity thus offered for experimental examinations in regard to this law of increase of temperature in the interior of the earth, was so favorable that M. Walferdin took advantage of it, and made some very interesting experiments with his thermometrical instruments, at depths never before attained. He says:

"Many soundings had been made at Creuzat; two of these borings, above all others, attracted my attention; in the first, that of Monillelouge, in course of execution they had attained the depth of 816 metres; in the second, that of Torcy, the work, after having reached the depth of 595 metres, had been suspended for six months.

They are both in the same direction, traversing analogous stratas of the earth, and are only separated from each other by about 1,500 metres, and also being nearly the same height above the level of the sea, the difference being about 10 metres.

It was on the 13th of May, at seven o'clock in the evening, after all work had been discontinued for 80 hours about the pit, that the thermometrical instruments were introduced to a depth of 816 metres. They were taken out on the 14th of May, at 10.55 A. M., and the vase containing them was found completely filled with compact mud, and in which they had rested during 16 hours. They indicated a mean temperature of 38° 5′. One of glass tubes containing the instruments burst under the enormous pressure of 81 atmospheres.

Whilst the intelligent experimenter proceeded to make the comparisons from the different thermometers, M. Bauer, engineer, again introduced the instruments on the same day, 4.30 P. M. They arrived at the bottom at 5.57, and were taken out on the following day, the 15th of May, at 10.30. They had consequently been under observation for 16 hours and 32 minutes, and this second experiment was commenced 102 hours after the cessation of all work about the boring. When brought to the surface, the instruments indicated 38° 31′. It is this last result that M. Walferdin has adopted.

Torcy is situated in 1° 52′ of East longitude, and 46° 40′ 38″ of North latitude, and is 310 metres above the level of the sea. The boring, which has been carried to the depth of some 400 to 500 metres, has penetrated into the slate and sand stone of the coal strata just to the depth of 595 metres. Here all work had been suspended for a long time, and consequently they entertained no fear of an increase of temperature from percussion.

Some caving in of the earth had filled the lower portion of the pit, and it was at the depth of 554 metres only that the instruments could be put in observation. They were sunk 13 metres in the mire at the bottom of the pit, and remained during 17 hours and 38 minutes. Brought to the surface they indicated a mean of 27° 23′.

Although this last experiment left little doubt on the mind of Mr. Walferdin, yet he tried the experiment 10 days afterwards, the 22d day of May. —Placed exactly under the same circumstances as for the previous experiments. the thermometrical instruments were introduced into the *miry vase* at the bottom of the pit, and remained 17 hours and 25 minutes, and they indicated a mean of 27° 22′.

It is evident, Torcy, being situated at 310 metres above the level of the sea, furnishes, at the depth of 554 metres, an excellent horizon "*thermo-geognostique*" for calculating the increase of temperature from the depth obtained by comparison to the 816 metres attained at Mouillelouge.

Thus the 38° 31′ observed at Mouillelouge at 816 metres compares very nicely with the 27° 22′ indicated at Torcy at the depth of 554 metres, giving for a difference of 262 metres an augmentation of temperature of 11° 09′, or one degree for 23.6 metres.

We can start equally from this horizon of 554 metres to calculate with the same certainty the increase of the temperature or terrestrial heat just to the surface of the earth.

The favorable position of Torcy—its longitude, its latitude, and its altitude—gives us the approximate valuation to 9° 2′, which gives an increase of temperature of 18° 02′ for 554 metres, or one degree for 30.7 metres.

Thus the observations of Torcy and Mouillelouge show that at Creuzat the terrestrial heat increases from the surface of the earth to a depth of 550 metres of 1 degree for 30 to 31 metres, but that at 500 to 800 metres this increase is more rapid, since one degree corresponds but to 23.6 metres. In face of this result the intelligent experimenter doubts it, in spite of the precautions that were taken at Mouillelouge to try the beds at their normal temperature, the effect that produced the percussion was entirely annihilated.

The boring at Mouillelouge has at present reached the depth of 900 metres, and it is probable that ere long 1,000 metres will be reached; and M. Walferdin hopes to renew these experiments that are invested with so much interest.

For the benefit of such of your readers as are

not acquainted with thermometer of Celsius and the French measures, I subjoin the following. Any number of degrees marked Centigrade can be reduced to Fahrenheit by the following:

Fahr. = 9-5th Celsi. + 32.

Example.—100° Centi.

9

5)900

180

32

212° Fah.

A French metre equals 39.38 inches.
A kilometre do. 1,000 metres.
—*Corresp. Baltimore Patriot.*

The Grain and Lumber Trade at Chicago.

(*From the Chicago Times, Nov.* 24.)

The receipts of lumber during the last week have been 4,615,000 feet. The total receipts of the season are now 435,000,000 feet, as follows:

	Feet.
Week ending Nov. 21	4,615,000
" " 14	5,291,124
" " 7	3,595,000
Month of October	33,699,045
" September	68,185,835
" August	72,152,956
" July	88,122,472
" June	84,047,485
" May	62,142,925
Previously	13,193,478
Total	434,713,494

The receipts by railroad and canal during the last week have been 10,599 barrels flour, 362,018 bushels wheat, 13,739 bushels corn, and 38,829 bushels oats, equivalent to 456,581 bushels of grain, against 661,841 bushels of the preceding week, and 916,948 bushels of the week before. The total receipts of the season are now 281,484 barrels flour, 9,178,728 bushels wheat, 6,090,656 bushels corn, and 1,083,478 bushels oats, or a total equivalent to 7,812,576 bushels of grain.

The shipments by lake during the past week were 3,045 bbls. flour, 546,836 bushels wheat, 22,135 bushels corn, and 2,418 bushels oats, constituting forty-four cargoes, and equivalent to 586.614 bushels of grain, against 764,020 bushels of the preceding week, and 882,193 bushels of the week before. The total shipments of the season are now 150,856 bbls. flour, 9,395,735 bushels of wheat, 6,877,433 bushels corn, and 380,188 bushels oats, or a total equivalent to 17,603,903 bushels of grain.

The grain market was dull here yesterday, 56c. being the highest price that was paid for spring wheat delivered on board of vessels, which is 10 cents less than at this time last year.

The season of the year has now arrived when the pork market will attract more attention for a short period than operations in grain. The weather is cold and clear, and favorable for packing, and operations are progressing to some extent; $4 25 a$4 30 per 100 lbs. gross weight are paid for some lots, but $4 10 is the most usual price.

The following is a summary of the grain business of the present year:

RECEIPTS.

In store.	*Flour, bbls.*	*Wheat, bu.*	*Corn, bu.*
April 10	57,000	755,190	134,000
April	12,142	94,290	96,491
May	9,328	253,026	576,043
June	15,975	408,286	1,447,249
July	25,460	500,583	2,024,338
August	11,775	569,902	888,897
Sept	53,024	2,682,877	706,293
Oct	58,269	2,255,409	139,256
Nov. 7	15,993	764,705	25,659
Nov. 14	12,118	522,531	34,706
To Nov. 21	10,599	362,018	13,839
Total	281,484	9,178,728	6,090,656

In store.	*Oats, bu.*	*Total equivalent.*
April 10	153,187	1,347,377
April	57,463	308,954
May	113,188	998,897
June	56,181	1,991,991
July	93,476	2,718,702
August	99,186	1,618,604
Sept	199,580	3,853,870
Oct	183,347	2,838,767
Nov. 7	42,628	916,948
Nov. 14	44,513	661,841
To Nov. 21	38,829	466,581
Total	1,083,378	17,812,576

SHIPMENTS BY LAKE.

May	34,175	917,569	752,702
June	10,765	634,137	1,580,874
July	15,471	432,433	1,927,348
August	5,838	471,717	1,462,904
Sept.	31,211	2,680,279	816,362
Oct.	41,817	2,258,575	264,810
Nov. 7	11,894	742,855	25,888
Nov. 14	3,940	701,334	23,910
To Nov. 21	3,045	546,836	22,135
Total	157,850	9,835,735	6,877,433
May		58,609	1,886,497
June		42,600	2,306,336
July		31,260	2,568,623
August		7,500	1,970,311
Sept		97,665	3,739,858
Oct		67,080	2,899,451
Nov. 7		53,980	882,193
Nov. 14		19,476	764,020
To Nov. 21		2,418	586,614
Total		380,188	17,603,903

The Iron Interests.

CIRCULAR OF THE SECRETARY OF THE TREASURY TO THE IRON MASTERS.

TREASURY DEPARTMENT, August, 1857.

This department has been furnished with undoubted evidence that there is a great difference between iron from different mines in the United States in the degree and rapidity with which they become oxidized. Congress, during the last session, appropriated the sum of $2,500 to test the different irons of this country in that particular.—If these experiments shall establish the important fact that we have irons entirely or nearly proof against the corrosion of oxygen, it will multify the uses of such iron to a very considerable extent for purposes to which it is not now applied and give it the preference over other irons for many purposes for which iron is now used.

The very large extent to which this material is superseding the use of wood and stone in the public buildings, erecting at a cost of many millions of dollars annually, under this department, renders it of the greatest importance to know what irons resist for the longest period, the action of oxygen. It is hoped that the great interest the iron masters have in the result of this experiment will be considered sufficient apology for requesting samples of their iron and the ores from which they are made.

I have, therefore, to request that you will forward to this department, by mail or express, two or three small samples of iron and a sample of ore from each of the mines worked by you; the samples of iron not to exceed a quarter of a pound each, and the ore not to exceed a half pound in weight. I would also request information on the following points, viz:—The extent of the ore deposit; facilities of mining ore, its distance from furnace, and distance of furnace from market, and mode of transportation thence; the fuel used; relative cost of charcoal, coke, crude, bituminous and anthracite iron; kind of flux and its cost, &c. The capacity of the establishment and the amount of iron it produced during the last year, and what it would be capable of producing under a ready sale and remunerating prices;; any peculiarity of the iron produced, whether there are rolling mills in the vicinity, and what descriptions of iron they roll, to what purposes most of the products of your furnaces are applied, and what description of iron the establishment produces; when did your works first go into operation; what has been the annual production and what the ruling prices each year since your works were first started. You will please give the State and county in which your iron mine is situated and the distance your fuel is transported. As it is the intention of the department to furnish you with the result of the experiments, you will please name the Post Office through which to address you. If you know of any one in your neighborhood interested in the iron business, who does not receive a copy of this letter, if you will forward his address one will be sent to him. You will realize the value of the information, which it is sought to be obtained by this circular, when you reflect upon the growing importance of the iron interest of the country—a fact attributable in no small degree to the introduction of iron as a substitute for other materials in our public buildings.

The policy of affording encouragement to this great interest, by promoting its production and increasing its consumption has been commenced by the government, and I am desirous of obtaining all the information which can be had on the subject, with a view to its further development.

This circular will be addressed to persons not immediately connected with iron establishments, as it is believed that there will be not only a willingness but an anxiety on the part of every one to advance the object which the department has in view.

I am desirous of obtaining the information asked for at the earliest practicable moment.

HOWELL COBB, Secretary of the Treasury.

Finances of Georgia.

The Treasurer's report shows a balance in the treasury, on the 20th October, 1856, of $355,365.-33, and the amount received up to the same date in 1857, from all sources, $594,051.73, The balance remaining in the treasury on the 20th October, 1857, is $437,826.16, and the expenditures during the year, $511,789.90, of which amount $236,157.47 have been expended in payment of the public debt and interest. The State debt is now reduced to $2,700,000, while the State road, the property of the State, is valued at $6,000,000, which road is now fully and efficiently equipped with locomotives and passenger cars. During the past two years this road has paid into the treasury from its surplus earnings $143,600, of which amount $108,500 was paid in the past year. The predictions of its friends are about being realized, and from this time forward it will materially lessen the taxes of the citizens. The system of taxation in this State is an advalorem one—this year they were about nine mills one the $100—next year they will be reduced to about eight. Cheap enough.—The reduction is made on account of the large increase in value of all taxable property—the returns this year showing $528,927,963, against $495,478,-045 in 1856. The Comptroller estimates that independent of the increased valuation this year ($33,449.04) his estimation is that there are 46,751 negroes and 40,754,669 acres that have not been eturned this year.

Dubuque and Pacific Railroad.

The Fort Dodge *Sentinel* says "that track laying is going on rapidly between Dyersville and Manchester, and in all probability the road will be in running order to the latter place by the first of January. Also, that notwithstanding the hard times, the chances are fair for the road being graded, and furnished with ties to Cedar Falls next season. The company propose doing some work between Cedar Falls and the Des Moins river the coming year, where the grade is heavy. But it needs, and must have, the hearty co-operation of the people along the line. The energetic character of the present Board of Directors of this road, is a perfect guarantee that every effort will be made to drive it through, despite the stringency of the money market."

Railway Share List,

Compiled from the latest returns—corrected every Wednesday—on a par valuation of $100.

NAME OF COMPANY.	Length of Road.	Capital paid in.	Debt.	Total cost of road & equip't.	Gross Earnings for last official year.	Net Earnings for do.	Dividend for do.	Price of Shares.
Atlantic & St. Lawrence	149	2,494,000	3,874,576	6,368,576	565,168	----------	6	75
Androscog. & Kennebec	53	671,476	1,546,840	2,218,316	225,361	107,687	none	14
Kennebec & Portland	72	1,107,526	1,763,738	2,871,264	223,298	----------	none	----
Port., Saco, & Portsm'th	51	1,396,400	----------	1,359,373	253 717	120,909	6	85
Boston, Conc. & M'ntreal	93	1,809,032	1,104,586	2,848,977	324,767	174,025	----	----
Cheshire	53	2,085,925	899 313	3,179,687	355,629	113,077	----	9
Concord	35	1,500,000	8,242	1,412,576	317,050	125,664	6	37
Northern, N. H.	82	3,068,400	346 608	3,068,400	418,032	189,430	4	32
Coun't & Passumps. Riv.	61	1,000,000	800,000	1,784,146	174,308	76,182	none	2
Rutland & Burlington	117	2,233,376	4,158,276	4,565,556	496,440	295,760	none	----
Vermont Central	122	5,000,000	4,923,299	8,402,054	765,935	214,793	none	1
Boston and Lowell	25	1,830,000	447,660	2,336,450	490,733	195,586	none	56
Boston and Maine	74	4,076,974	50,000	4,176,205	905,914	400.355	6	81¼
Boston and N.Y. Central	74	2,240,300	1,696,976	3,659,250	----------	----,918	----	4
Boston and Providence	43	3,160,000	277,465	3,654,966	632,227	272	5	69
Boston and Worcester	44	4,500,000	614,514	4,865,499	1,008,782	416,933	7	77
Cape Cod	47	681,690	299,705	1,024,152	124,073	39,593	----	49¼
Connecticut River	50	1,591,110	267,858	1,802,244	288,670	91,624	4	45
Eastern, Mass.	60	2,583,400	2,674,136	4,587,435	717,869	321,943	----	38
Fitchburg	67	3,540,000	100,000	3,872,821	668,974	250.893	----	65¾
N. Bedford and Taunton	21	500.000	none	541 580	168,925	27,827	6	----
Old Col'y and Fall River	77	3,015,100	260,100	3,362,949	683,357	305,140	6	77¾
Vermont and Mass.	69	2,232,541	1,019,148	3,241,975	240,133	52,267	none	5¾
Western, Mass.	155	5,150,000	5,839,080	10,495,905	2,117,982	889,763	7½	95
Worcester and Nashua	46	1,141,000	205,565	1,351,271	216,888	82,720	4	37
Prov'nce and Worcester	43	1,510 020	300,000	1,781,048	344,773	155,044	7	75
Hartford and N. Haven	72	2,359, 00	944,000	3,°24, 31	769 065	372 807	10	114
Hart'd, Prov. and Fishkill	122	2,017 600	2,150,489	4,060,869	340,593	169,437	none	----
Housatonic	74	2,000,000	2,000,000	2,431,773	329,297	47,881	none	----
Naugatuck	57	1,031,800	524,244	1,580,723	23°,416	114,237	----	----
N. York and N. Haven	62	2,980,8 9	2,163,537	5,170,915	1,007,666	449 538	none	45
N. Haven and N. London	50	738,258	761,462	1,450,318	88,007	30,318	none	----
N. London, W. & Palmer	66	510,500	1,052,000	1,603,230	120,571	51.644	none	----
Norwich and Worcester	66	2,122,300	903,589	2,598,671	323,715	98,921	----	13
Albany Northern	32	439,005	1,625,098	1,840.695	117,716	9,904	----	----
Black River and Utica	35	643,330	317,854	974,323	In progr.	----------	----	----
Buffalo, Corn. and N. Y.	100	1,487,874	1,501,183	2,819,096	172,476	66,333	none	----
Buffalo and N. Y. City	92	798,439	2,587,849	3,401,868	288,392	31,896	none	----
Buffalo and St. Line	69	1,300,00	1,040.000	2,494,364	679,750	355,763	10	----
Canandaigua and Elmira	47	434.111	922,393	1,275,796	174,089	69,506	----	----
Canandaigua & Niagara F'l	98	1,315,000	2,279,854	3,495,832	----------	----------	----	----
Cayuga & Susquehanna	35	687,000	506,689	1,187,562	135,433	48,649	none	----
Hudson River	144	3,758,466	9,250,362	12,737,898	1,812,087	603,946	none	21
Long Island	95	1,875,148	668,949	2,555,986	301,793	116,462	none	22
New York Central	556	24,136,681	14,763,897	29,786,372	7,773,069	4,097,867	8	74¼
New York and Erie	464	10,023,958	25,995 969	33,439,431	6,349,056	3,005,670	none	16
New York and Harlem	130	5,717,100	4,069,769	8,758,203	1,040,393	324,891	none	8½
Northern, N. Y.	118	1,633,022	4,400,874	5,470,714	520,153	135,754	none	1
Oswego and Syracuse	35	396,130	215,545	741,618	146,191	77,083	3½	----
Pottsdam and Watertown	29	467,200	294,189	749,683	In progr.	----------	none	----
Rensselaer & Saratoga	25	610,000	140,000	896,423	241,149	82,600	7	----
Saratoga and Whitehall	48	600,000	395,600	----------	71,909	21,089	none	----
Syracuse & Bingham'n	80	768 369	1,578,804	2,272,777	159,484	22,503	none	----
Troy and Boston	27	437,830	737,079	1,109,822	156,363	55,184	----	----
Watertown and Rome	97	1,500,000	700,979	2,200,500	440,290	162,037	3½	63
Bel'dere Delaware	64	1,000,000	1,619,000	2,844,090	243,393	114 682	none	----
Camden and Amboy	94	3,000,000	11,407,200	8,791,096	1,640,787	594,114	12	130
Camden and Atlantic	60	3,485,000	1,560,854	1,738,171	117,389	45,542	none	----
New Jersey	30	3,482,850	743,000	3,517,180	910.636	509,921	10	118
New Jersey Central	63	2,000,000	3,305,093	4,553.896	553,478	319,319	7	----
Morris and Essex	53	1 157,805	352,500	1,652,927	245,585	86,250	6	----
Alleghany Valley	44	1,637,867	342,564	1 988,317	Recently	opened.	6	----
Cataw., Wil. & Erie	62	1,700,000	1,940,000	3,640,000	219,253	52 450	----	----
Cumberland Valley	52	1,099,500	----------	1,215,641	243,410	111,139	----	----
Del. Lack. & Western	170	3,292 772	6,194,561	8,013,761	815,768	419,139	6	15
Erie and North East	20	600,000	150,000	750,000	----------	----------	10	----
Philad. & Sunbury	33	600,000	1,200,000	1,348,812	89 535	53,335	----	----
Little Schuylkill	28	2,606,100	546,222	3,407,651	353,301	255,930	9	----
North Penn.	52	3,054,865	2,247,363	3,287,678	74,388	11,796	----	----
Pennsylvania	266	12,646,625	8,516,841	21,977,704	4,720,193	1,732,146	6	78¾
Phil. and Reading	96	11,030,309	7,438,800	19,004,180	3,913 742	1,944,722	10	53¾
Phil. Wil. and Baltimore	98	5,000,000	4,399,776	7,979,466	1,139,155	503,399	----	20
Phil. Germ. & Norrist'n	18	899 350	376 800	1,274 150	206,981	113,443	9	59¼
Pittsb. and Connellsville	147	1,339,681	788,000	1,388,993	In progr.	----------	----	----
Sunbury and Erie	269	3,676,030	875,293	3,238,293	105 860	40,500	----	----
Williamsport and Elmira	78	1,500 000	1,990,000	3,464.454	274,554	157,458	----	----
Baltimore and Ohio	382	13,118,902	10,986,804	24,413 919	4,616,998	1,856,214	3	48¾
Washington Branch	41	1,656,000	25,000	1,650,000	369,229	124,981	6	----
Northern Central, Md.	84	2,600,000	3,835,995	6,451,946	665,980	301,980	----	----
North-Western Va.	165	468,305	5,719,229	5,324,150	Recently	opened.	----	----
Alexandria and Lynchburg	97	1,4 7,000	1,006,484	2,028,066	275,791	138,8 2	----	----
South Side	123	1,371,700	1,489,012	2,739,362	102,626	313,801	none	----
Pittsb'g & Steubenville	32	1,221,277	280,000	914,695	In progr.	142,6 6	----	----
Virginia Central	175	3,000,988	1,479 318	4,681,681	508,413	270,048	none	----
Virginia and Tennessee	204	3,157,158	2,884,089	5,496,090	322,048	165,076	----	----
Richmond and Danville	140	1,975,020	323,407	3,449,4°6	421,762	215,011	----	----
Richmond & Petersb'g	22	786,100	231,739	1,148,054	151,947	73,234	none	----
Rich'd, Fred. & Potom'c	130	1,000 000	730,506	1,708,169	232.172	120.212	7	----
Petersburg and Roanoke	68	769,000	158,502	1,009,115	265,874	123,661	4	----
North Carolina	228	4,000,000	----------	4,235,000	Recently	opened.	----	----
Wilm'ton & Manchester	171	1,115,402	1,296,340	2,368,735	344,636	148.459	none	----
Raleigh and Gaston	97	973,300	100,000	1,170,845	253,548	76,668	2½	----
Charlotte and S. Carol.	109	1,201.000	390,000	1,719,045	256,042	97,936	6	----
Greenville & Columbia	165	1.293,464	968,800	1,999,080	214,865	206,774	----	----
North-Eastern	104	826,316	225,585	1,820,527	Recent y	opened.	----	----
South Carolina	203	4,179 205	3,318,525	7,588,037	1,546,961	766,268	9	----
Atlanta and La Grange	87	1,000,000	199,000	1,171,707	317,770	191,892	8	----
Georgia	211	4,156,000	476,895	4,174,491	1,109,681	389,465	7½	----
Georgia Central	191	3,725,910	276 655	3,750,000	1,341,711	694,696	9	----
Macon and Western	102	1,354,500	129,000	1,566,805	348,588	143,579	10	80
Montgomery & W. Point	116	1 415,124	989,553	2,258,983	335,723	115,363	----	----

NAME OF COMPANY.	Length of Road.	Capital paid in.	Debt.	Total cost of road & equip't.	Gross Earnings for last official year.	Net Earnings for do.	Dividend for do.	Price of Shares.
Brunswick and Florida, Ga.	30	300,000	300,000	550,000	In progr.	----------	----	----
South. Western	92	1,399,100	441,292	1,716.731	365,214	199.897	8	----
Tennessee and Alabama	30	246,486	----------	679,906	53,775	29,405	----	----
Tennessee and Missis.	----	170,931	----------	175,340	In progr.	----------	----	----
Memphis and Charlest'n	287	2,228,177	3,495.288	5,572,470	642 022	334,504	----	----
Mobile and Ohio	198	3,155,178	1,824,960	6,515,470	419,711	217,609	----	----
Miss. Central	188	642,534	none	628,303	In progr.	----------	----	----
N.O., Opelousas & G.W.	80	3,011,019	640,226	2,574,865	206.365	111,707	----	----
N. O., Jackson & &. N.	130	4,035 000	1,815,610	3,500.000	189 003	----------	----	----
Vicksb., Shrevep. & Tex.	12	111,750	none	107,895	In progr.	----------	----	----
East Tennessee and Ga.	111	1,000,000	1,500,000	2,500,000	In progr.	----------	----	----
East Tennessee and Va.	48	625,425	247,552	1,033,781	31,048	----------	----	----
Nash. and Chattanooga	151	2,263,270	1,630,680	3,494,947	558,559	273,098	none	----
Covington & Lexington	98	1,302,804	2,235,939	3,738,753	264,978	138,694	----	18
Lexington and Frankfort	29	430,055	156,899	658,255	95,807	45,719	6	----
Lexington and Danville	13	694,444	71,000	765,500	In progr.	----------	----	----
Louisville and Frankfort	65	698,236	669,061	1,589,566	243,035	110,440	6	----
Atlantic & Gt. Western	254	866,939	77,294	613,231	In progr.	----------	----	----
Bellefontaine and Ind.	118	1,881,635	1,247,500	2,939.851	395,950	171,257	none	80
Clev., Col., and Cincin.	141	4,741,220	103,489	4,731,626	1,329,754	700.804	9	90
Cleveland and Toledo	200	2,675,425	3,739,207	6,697,920	736,272	396,986	10	41¾
Clev. and Mahoning	65	----------	----------	628,533	In progr.	----------	----	----
Clev. and Pittsburg	133	2,780,744	3,043,992	5,537,466	581,877	309,518	----	14¾
Cin., Hamil'n & Dayton	60	2 155,800	1,526,092	3,130,315	555.709	194,107	----	50
Cin., Wilm. & Zanesv'e	131	1,761,749	2,587,432	5,320,271	221.792	----------	----	12
Columbus and Xenia	55	1,490,450	149,000	1,582,475	403,212	181,688	10	82
Dayton, Xen., & Belpre	63	437,838	422,658	860,496	In progr.	----------	----	----
Dayton and Michigan	140	1,076,602	393,011	1,185,826	In progr.	----------	----	----
Dayton and Western	35	310,000	700,481	1,035,173	125,940	66.253	----	17
Eaton and Hamilton	42	454,690	904,489	1,155,135	171,929	65,000	----	20
Little Miami	65	2,981,282	1,324,568	3,798,093	806,424	363,376	----	85
Mad River and L. Erie	205	2,451,650	2,572,932	4,446,661	----------	----------	----	15
Central Ohio	138	1,626,85	5,191,877	6,421,908	712,213	134,371	none	----
Pittsb. Ft. Wayne & Chicago	383	5,994,144	7,344,827	11,718,511	1,111,626	662,117	9	32
Pittsb'g, Mayev'e & Cin.	50	371,350	31,000	390,933	In progr.	----------	----	----
Sand'y, Manef. & New'k	127	1,350,000	2,206,357	3,552,357	328,958	164,479	none	----
Scioto & Hocking Valley	56	403,975	509,050	888,858	In progr.	----------	----	----
Springf., Mt. Vernon & P.	113	1,000,000	950,000	----------	In progr.	----------	----	----
Tol., Wabash & St. Louis	242	2,965,100	7,577,500	10,542.600	Recently	opened.	----	----
Cin., Log, and Chicago	255	4,196,679	1,006,125	2,080,433	In progr.	----------	----	----
Evansv'e & Crawfordsv.	109	706,945	1,177,596	1,844,541	127,400	64,552	----	----
Ind. and Cincinnati	88	1,655,139	1,576,107	2,884,922	579,959	292,861	7	60
Indiana Central	66	612,350	1,261,179	1,909,911	434.004	249.518	----	45
Ind., Clev. & Pittsburg	83	826,825	1,001,900	1,912,402	296,845	136,653	none	----
Jeffersonville	66	1,014,252	694,000	----------	206,544	94,318	none	----
Madison and Indianapolis	87	1 647,700	1,336,816	1,206,000	286,146	112,880	none	----
New Albany and Salem	288	2,535,121	5,281,848	6,643,189	645,827	371,402	none	----
Peru and Indianapolis	73	----------	858 314	----------	150,000	90.000	none	16¾
Terre Haute and Ind.	73	974,800	604,355	1,502,166	531,535	189,702	10	----
Chicago and Rock Isl'd	182	5,248,000	1,734,318	6,628,272	1,886,196	850,039	----	78
Chicago and St. Louis	220	----------	----------	----------	1,077,312	----------	----	----
Chicago, Burl. and Quincy	146	2,911,816	3,681,590	6,042,370	1,882,219	968,83	20	----
Chic., St. Paul & Fd du Lac	178	2,300,000	1,325.000	3,625,000	In progr.	----------	----	----
Galena and Chicago	259	5,441,500	3,318,039	7,742,614	2,315,786	1,192,042	22	79
Illinois Central	704	3,258,615	19,841,724	23,100,339	2,476,035	1,031,489	----	94¼
Peoria and Oquawka	93	569,889	818,454	1,388,342	In progr.	----------	----	----
Ohio & Miss. (Wst. Div.)	147	1,780,295	3,292,403	4,870,586	Recently	opened.	----	----
Terre Haute, Alt & St. Louis	208	3,110,650	4,450,802	7,496,716	583.476	305,348	----	----
Detroit and Milwaukee	185	838,000	1,128,964	1,966,969	In progr.	----------	----	----
Mich. Central	282	6,058,092	7,287,387	11,848,957	3,104,802	1,231,708	10	52
Mich. South'n & N. Ind.	475	6,928,900	9,219,360	13,337,170	2,714,848	1,166,079	10	16¾
Green Bay, Mil. & Ch.	155	764,076	442,726	1,193,765	In progr.	----------	----	30
Milwaukee and Miss.	251	2,975,019	3,493,155	6,152,076	680,472	372,691	1.	32
Milwaukee & Water'n	72	354,861	132,000	514,238	In progr.	----------	----	49
Milwaukee and Horicon	15	1,101,200	----------	919,757	60,066	----------	----	----
Milwaukee & La Crosse	51	1,351,832	532,131	1,883,963	In progr.	----------	----	11½
Racine and Miss.	86	1,586,405	498,479	2,681.086	192 459	118,467	----	----
Hannibal & St. Josephs	39	465,733	1,835,92	2,474,064	In progr.	----------	----	----
North Missouri	58	1,848,700	326,407	2,848,834	4 .301	----------	----	----
Pacific	125	4,083,900	4,337,828	8,200,841	426,285	----------	----	----
St. Louis and Iron Mt.	----	445,170	----------	186,115	In progr.	----------	----	----
Panama	49	8,743,000	----------	6,564,852	1,254,039	928,585	12	87

U. S. GOVERNMENT SECURITIES.

	OFF'D. Per ct.	ASKED Per ct.		OFF'D. Per ct.	ASKED. Per ct.
Loan, 6 per ct. ---1862---	-----	-----	Loan, 6 per ct. coup's---1868---	----	114
Do. 6 do. ---1867---	113	114	Do. 5 do. Tex. ind.--1866---	----	-----
Do. 6 do. ---1868---	113	114	----------	----------	-----

STATE SECURITIES.

Maine, 6 per ct. ---1870---	101	102	Indiana, Can. Loan 6 per ct.	---	----
Massachusetts, 5 per ct. 1859	90	----	Do. do. pref. 5 do.	---	----
New York, 6 per ct. 1860-62	100½	103	Kentucky, 6 per ct. cp. 1869-72	98¾	99½
Do. 6 do. 1864-65	104	107	Louisiana, 6 do. cp. long	84	85
Do. 6 do. 1866-67	106	108	Maryland, 6 do cp. 1870-90	99¾	----
Do. 6 do. 1872-73	110	----	Do. 5 do. cp.	----	91¾
Do. 5¾ do. 1860-61	98	99½	Missouri, 6 do. cp. 1872	79¾	79½
Do. 5½ do. 1865	97	100	N. Carolina, 6 do. cp. 1873	86½	87
Do. 5 do 1858-60	99	100	Ohio, 6 do. 1860	99	----
Do. 5 do. 1866	98	100	Do. 6 do. 1870	----	----
Do. 4½ do. 1858 59-64	94	100	Do. 6 do. 1875	100¼	----
Alabama, 5 do. coup.	82	90	Do. 6 do. 1886	100½	----
California, 7 do. coup. 1870	67	69	Do. 5 do. 1865	90	95
Georgia, 6 do. do. 1872	----	96	Penna., 5 do.	84	85
Florida Int. Imp. 7 p. ct. 1891	----	85	Do. 5 do. cp. 1877	87	88
Illinois Int. Imp. 6 per ct. 1847	85	86	Tennes. 5 do. cp.	----	78
Indiana 5 do.	81	85	Do. 6 do. cp.	84½	85½
Do 2½ do.	51	51½	Virginia, 6 do. cp. 1886	88½	89½
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Railroad Bonds.

NAMES OF COMPANIES. (*The following quotations are ex-interest.*)	Amount of Loan.	Description of Bonds.	Rate Int.	Interest payable.	Where payable.	Due.	Offered.	Asked.
Alabama and Tennessee River	$838,000	1st mortgage, convertible	7	1st Jan. 1st July	N.Y.	1872	----	85
Buffalo and State Line	500,000	Do. inconvertible	7	April, October.	"	1866	90	92½
Bellefontaine and Indiana	600,000	Do. convertible	7	Jan'y, July	"	1866	----	77½
Do. do.	200,000	Real estate, convertible	7	Jan'y, July	"	1858	----	----
Do. do.	200,000	Income, guar. Cl. Col. & Cin.	7	Feb'y, August.	"	1859	----	----
Central Ohio	1,250,000	1st mort. conv. east. sec.	7	Divers	"	1861-64	----	76
Do.	800,000	2d Jo. inconvertible	7	March, Sept.	"	1865	----	65
Cincinnati, Hamilton, and Dayton	500,000	1st mortgage inconvertible	7	20. Jan. 20. July	"	1867	----	90
Do. do. do.	465,000	2d do. do.	7	May, Novemb.	"	1880	----	75
Cincinnat and Marietta	2,500,000	1st mortgage, conv. till 1862	7	Jan'y, July	"	1868	70	72½
Cincinnati, Wilmington, and Zanesville	1,300,000	Do. convertible	7	May, Novemb.	"	1862	----	75
Cleveland, Painesville, and Ashtabula	567,000	Do. inconvertible	7	Feb'y, August.	"	1861	88	92½
Cleveland and Pittsburgh	800,000	Do. convertible	7	Feb'y, August.	"	1860	----	90
Do. do.	1,200,000	Do. on Branches	7	March, Sept.	"	1873	----	70
Cleveland and Toledo	525,000	Do. inconvertible	7	Feb'y, August.	"	1863	----	85
Chicago and Mississippi	800,000	Do. conv. till 1857	7	April, October.	"	1862-72	----	65
Do. do.	1,200,000	Do. inconvertible	7	April, October.	"	1862-72	----	65
Covington and Lexington	400,000	Do. do	6	April, October.	"	1867	67	70
Do. do.	1,000,000	2d mortgage, convertible	7	March, Sept.	"	1883	----	67½
Delaware, Lackawanna, and Western.	1,500,000	1st mortgage, do.	7	April, October.	"	1875	----	75
Florida Freeland	1,500,000	Do. not convertible.	7	March, Sept.	"	1891	----	80
Fort Wayne and Chicago	1,250,000	Do. conv. till 1863	7	Jan'y, July	"	1873	----	75
Galena and Chicago	2,000,000	Do. inconvertible	7	Feb'y, August.	"	1863	90	95
Do. do.	2,000,000	2d mortgage, do.	7	May, Novemb.	"	1875	79	82
Great Western (Illinois)	1,600,000	1st mortgage, do.	10	April, October.	"	1868	----	92
Green Bay, Milwaukee, and Chicago	400,000	Do. convertible	8	10 April, 10. Oc.	"	1863	----	----
Jeffersonville	300,000	Do. 2d sec. inconv.	8	April, October.	"	1873	----	77½
Indiana Central	600,000	Do. convertible	7	May, Novemb.	"	1866	----	90
Indianapolis and Bellefontaine	450,000	Do. do.	7	Jan'y, July	"	1860-61	76	80
Indianap. & Cin'ti (for Lawb. & U. M.)	500,000	Do. conv. till 1857	7	March, Sept.	"	1868	85	87½
La Crosse and Milwaukee	950,000	1st mort. 1st sec. conv. till 1864	8	May, Novemb.	"	1874	----	80
Lake Erie, Wabash, and St. Louis	3,400,000	1st mortgage, conv. till 1859	7	Feb'y, August.	"	1865	----	43
Little Miami	1,500,000	Do. inconvert.	6	2 May. 2 Nov.	"	1883	78	80
Michigan Central	1,000,000	No mortgage, convertible	8	April, October.	Bost.	1860	----	93
Do.	600,000	Do. do.	8	March, Sept.	"	1869	----	85
Milwaukee and Mississippi	600,000	1st mort. 1st sec. conv. till 1857	8	Jan'y, July	N.Y.	1862	----	90
Do. do.	650,000	Do. 2d do. 1858	8	April, October.	"	1863	----	90
Do. do.	1,250,000	Do. 3d do. 1860	8	June, Decemb.	"	1877	----	80
New Albany and Salem	500,000	Do. 1st section	10	April, October.	"	1858-62	----	----
Do. do.	2,325,000	Do. oth. sec. con. till 1858	8	May, Novemb.	"	1864-75	----	----
Northern Cross	1,200,000	1st mortgage, convertible	8	Jan'y, July	"	1873	----	90
Ohio and Indiana	1,000,000	Do. do.	7	Feb'y, August.	"	1867	----	90
Ohio and Pennsylvania	1,750,000	Do. do.	7	Jan'y, July	"	1865-66	----	85
Do. do.	2,000,000	Income, convertible	7	April, October.	"	1872	----	70
Pennsylvania (Central)	5,000,000	1st mortgage, conv. till 1860	6	Jan'y, July	Phila.	1880	89	----
Racine and Mississippi	680,000	Do. conv., sink'g f'd	8	Feb'y, August.	N.Y.	1875	81½	82
Scioto and Hocking Valley	300,000	Do. 1st sec. conv	7	May, Novemb.	"	1861	----	----
Steubenville and Indiana	1,500,000	Do. convertible	7	Jan'y, July	"	1865	----	80
Terre Haute and Indianapolis	600,000	Do. do.	7	March, Sept.	"	1866	----	----
Terre Haute and Alton	1,000,000	Do. do.	7	Feb'y, August.	"	1862-772	50	52

NAMES OF COMPANIES. (*The following quotations include the accrued interest.*)	Amount of Loan.	Description of Bonds.	Rate Int.	Interest payable.	Where payable.	Due.	Offered.	Asked
Baltimore and Ohio	2,500,000	Mortgage	6	April, October	Balt.	1885	76	78
Do. do.	1,128,500	Do.	6	Jan'y, July	Balt.	1875	----	80
Chicago and Rock Island	2,000,000	1st mortgage, conv. till 1858	7	10. Jan. 10. July	N.Y.	1870	94	96
Erie Railroad	3,000,000	1st mortgage	7	May, Novemb.	"	1867	98	100
Do.	4,000,000	2d mortgage, convertible	7	March, Sept.	"	1859	83	87
Do.	6,000,000	3d mortgage	7	March, Sept.	"	1883	67	67½
Do.	4,000,000	Not conv. Sink. Fund, $420,000	7	Feb'y, August.	"	1875	34	40
Do.	4,351,000	Convertible, Inscription	7	Feb'y, August.	"	1871	30	31
Do.	3,500,000	Convertible	7	Jan'y, July	"	1862	36	45
Hudson River	4,000,000	1st mortgage, Inscription	7	Feb'y, August.	"	1869-70	95	97½
Do.	2,000,000	2d do. do.	7	16. June, 16. Dec	"	1860	80	82½
Do.	3,000,000	3d do. convertible	7	May, Novemb.	"	1870	----	55
Illinois Central	17,000,000	Mortgage, inconvertible	7	April, October.	"	1875	86	86½
Do. (Free Land)	3,000,000	M'ge 345,000 acrs–priv. 7 shar's	7	March, Sept.	"	1860	87	90
Michigan Southern	1,000,000	1st mortgage, inconvertible	7	May, Novemb.	"	1860	70	----
New York and Harlem	1,800,000	Do. do.	7	May, Novemb.	"	1861-72	65	70
New York and New Haven	750,000	No mortgage, do.	7	June, Decemb.	"	1855'60'6	82	86
New Haven and Hartford	1,000,000	1st mortgage, do.	6	Jan'y, July	"	1873	----	94
Northern Indiana	1,000,000	Do. do.	7	Feb'y, August.	"	1861	----	80
Do. Goshen Branch	1,500,000	Do. do.	7	Feb'y, August.	"	1868	----	65
New York Central	8,287,000	No mortgage, do.	6	May, Novemb.	"	1883	84	84½
Do. do.	3,000,000	No m'ge conv. from June 57–59	7	15. June, 15. Dec	"	1864	95	----
Panama, 1st issue	900,000	Convertible till 1856	7	Jan'y, July	"	1868	----	----
Do. 2d do.	1,478,000	Do. till 1858	7	Jan'y, July	"	1866	85	88
Reading, issued 1843	1,573,000	Mortgage, inconvertible	6	Jan'y, July	Phila.	1860	----	----
Do. do. 1844, '48, '49	1,300,000	Do. convertible	6	Jan'y, July	"	1860	----	----
Do. do. 1849	3,469,000	Do. inconvertible	6	April, October.	"	1870	75	75

CITY SECURITIES.	Int'st payable.	Off'd	Askd
New York. 7 per ct.-----1857	Feb'y,	----	----
Do. 5 do. ----1858-'60	May,	95	96
Do. 5 do. ----1870-'75	August, and	92	----
Do. 5 do. ------ 1890	November.	88	----
Albany, 6 per ct. coup..1871-'81 X	Feb'y, August.	99	100
Alleghany, 6 per ct. coup. ------X	Jan'y, July	----	70
Baltimore, 6 per ct.----1879-'90	Quarterly	87	91
Boston, 5 per ct. coup. ------X	April October.	----	95
Brooklyn, 6 per ct. coup..Long X	Jan'y, July	----	90
Clev'l'd, 7 per ct. cp. W.W. 1879 X	Do. do.	----	----
Cincinnati, 6 per ct. coup. ------X	Divers	80	85
Chicago, 6 per ct. coup..1873-'77 X	Jan'y, July	----	75
Do. 7 per ct. coup.----1880 X	Jan'y, July	80	100
Detroit, 7 per ct. cp. WW. 1873-'78 X	Feb'y, August.	90	----
Dubuque, 8 per ct. cp. ---Long X	March, Sept.	----	100
Jersey City, 6 p.ct.cp. WW. 1877 X	Jan'y, July	----	96
Louisville, 6 per ct. cp...1880-'83 X	Divers	75	80
Memphis, 8 per ct. coup ..1882 X	Jan'y, July	----	65

CITY SECURITIES.	Int'st payable.	Off'd	Askd
Milwaukee, 7 per ct. coup. ------ X	Divers	----	60
New Orleans, 6 per ct. cp. R.R. X	Do.	----	70
N. Orleans, 6 per ct. cp. municip. X	Jan'y, July	----	80
Philadelphia, 6 per ct ...1876-'98	Jan'y, July	97½	97¾
Pittsburgh, 6 per ct. coup. ------ X	Divers	----	70
Quincy, 8 per ct. coup.----1868 X	Jan'y, July	----	55
Racine, 7 per ct. coup. ----1873 X	10. Feb'y, Aug	----	85
Rochester, 6 per cent. coup. --- X	Divers	----	97
St. Louis, 6 per ct. coup.---Long X	Do.	----	72½
Do. do. Municipal --- X	Do.	----	75
Sacramento, 10 p.ct. cp. 1862-'74 X	Do.	----	45
S. Fr'cisco, 7p.c.cp.1865, pay.N.Y. X	May, Novemb.	----	80
Do. 10 p. ct. cp. ----1871 X	Do. do.	85	89
Do. 10 do. pay. N. Y.--- X	Jan'y, July	----	----
Do. 6 per ct. pay. N.Y. 1875 X	Do. do.	----	60
Wheeling, 6 per ct. coup. ------ X	Divers	----	60
Do. 6 p.ct. cp. Mun..1874 X	March, Sept.	----	81
Zanesville, 7 do. ------- X	April, October	----	97

Extract from De Coppet & Co.'s Money Circular for the European Steamer of the 2d December.

[TRANSLATED.]

NEW YORK, Monday Nov. 30, 1857.

Our last advices were of the 24th inst. Those of to-day embrace only four business days, a holiday having intervened. There is no striking change in the general conditicn of affairs. The news of the Liverpool steamer of the 14th inst., (telegraphed from New Foundland the 25th inst.,) has lessened the uneasiness which the previous mail had left us. The suspension of the Act of the Charter of the Bank of England, which removes the prohibition from issuing bank notes beyond a certain limit, and the immediate relief it produced in turning aside an impending panic, have been received with great satisfaction in this city, nevertheless the next advices are awaited with impatience. In the beginning of the week there was a recovery at the Stock Exchange, from the downward current at the close of our last advices, favored by the announcement of large specie shipments, but this upward movement was not sustained, and for the last two days the market has been weak, particularly in speculative securities; investment securities continue steady. State Stocks have been rather active. The principal transactions were in Missouri 6s, at a rise of 1; in North Carolina 6s, New York 6s and 5s, Ohio 6s, and in California 7s, without marked fluctuations. Virginia 6s have risen ½, and Michigan 6s have been done at 90. City Bonds—Brooklyn 6s are the only ones that have been done in important amounts; they have sold at from 8[illegible] to 90, interest included. A few Chicago 6s have also been done at a slight advance. Railroad Bonds—Moderate transactions in Illinois Central Constructions, at a decline of ¼. Erie 7s, 1871 and 1883, have fallen, the latter 1½. There has been a pretty good demand for Michigan Central 8s, 1st mort., at about 82*a*83. At private sale, a rather large sale of Ohio and Pennsylvania Income Bonds took place, without change in price. Railroad shares—The transactions are moderate, and on the whole the fluctuations result in a decline on the prices of last week. The chief business is in Reading at 3½ advance; in New York Central at a decline of 3½, and in Erie of ¼; in Cleveland and Toledo, of 1 advance; in Illinois Central of 1 decline; in Chicago and Rock Island of 3½, and in Michigan Southern of 2½ decline. Money without change, easy for loans on call. Discounts out of bank remain very limited; confidence in business paper recovering but slowly. The rates are for current paper from 12*a*24 per cent., according to class and length. Exchanges on Europe were dull for the steamer. First-class bills on London, 109*a*109½; very good ones, 108*a*108½; Paris, 5.20*a*5.23.

DE COPPET & CO.

Extract from Marie & Kanz's Money Circular for the European Steamer of Dec. 2d.

[TRANSLATED.]

NEW YORK, Monday, Nov. 30, 1857.

Our last advices were dated the 24th inst. The following day news was received per telegraph advice from St. Johns, N. F., that there had been so intense a panic throughout Great Britain, that Government had found it necessary on the 13th to authorize the Bank of England to issue notes without regard to the restrictions imposed by the Act of 1844, and that in consequence of this step, tranquility had immediately been restored, and business was resuming its regular course. These advices, although of a nature calculated rather to increase confidence, have caused an almost complete suspension of speculative movements, and a decline on the generality of railroad stocks. This decline has been further promoted by the heavy falling off in the October and November traffic on most of the lines. State Stocks and other securities more particularly wanted, as investments are, on the other hand, less under the influence of foreign advices than of the abundance of idle capital in the market, and show generally an advance on previous quotations. The money market has shown no change, and money continues difficult to employ

with safety at a profit. To day we have, *via* telegraph from St. Johns, the news by the *Fulton* from Southampton under date of the 18th, announcing the continued favorable effects of the suspension of the Bank Act, but our stock market continues still inactive and heavy. State Stocks are higher and have been active, being in demand for investment. Virginias have advanced ½ per cent.; Missouri, 1; Ohio, 1868, ½; Louisiana, 4; Tennessee, Ohio, 1886, and New York State Stocks, steady at previous quotations; Kentucky sales at 99*a*99½; United States 6s, 1867, at 112; North Carolina 1 per cent. lower. City and County Bonds. No sales worthy of notice. Milwaukee Municipal 7s have advanced 1 per cent. Railroad Bonds—Dull, with the exception of Illinois Construction Bonds, Michigan Central, 8 per cent., 1st mortgages, the former at 1 per cent. advance, the latter at ½ per cent.; Erie 3d mortgagas, 1½ per cent. lower; New York Central 6s, 1½; 7s, and the 7s, 1876, without change; Freeland Bonds at 85; Chicago and Rock Island Bonds at 94½. Railroad Shares—Some declined, with a few exceptions, the chief depression being in Michigan Southern. Preferred sales have not been active, except in Erie, Reading, New York Central and Toledo. Erie, no variation; New York Central has declined 3¾; Panama, 2; Michigan Central, 2; Michigan Southern, 3¾; do. Preferred, 10; Illinois Central, ½; Toledo, ½; Rock Island, 4; Galena and Chicago, 4½; Cleveland and Pittsburg, ½; Milwaukee and Mississippi, ½; La Crosse and Milwaukee, ½; Hudson River, 1; Reading has advanced 2½; Cleveland, Cincinnati, and Columbus, 2; Chicago and Burlington and Quincy, ½. Money very abundant; loans on call, 7*a*5 per cent.; first class paper, 9*a*12; second class, 15*a* 24; American gold, 100½*a*100½. Exchanges firm, with an extremely limited business; London, 108 *a*109; chief sales, 108½*a*108¾; Paris, 5.25*a*5.18¾.

MARIE & KANZ.

American Railroad Journal.

Saturday, December 5, 1857.

On Currency.--No. 3.

In the preceding articles we gave the reasons for the adoption of gold and silver as mediums of exchange. We also showed that to the extent of their employment as money, is so much capital withdrawn from productive uses;—that to release capital so employed, the greater part of the exchanges of society are effected by the use of *symbols* or evidences of property;—that the symbols made use of are, by common consent, bills of exchange, and the bills of, and checks drawn upon *Banks of discount and circulation*;—that the capitals of such Banks are chiefly made up of commodities entering into consumption, or in the right thereto, or their equivalents;—that by the use of symbols, in commerce and trade, specie is wanted only for *change*, or to make up for any lack of commodities possessed by the parties issuing symbols, or evidences of such commodities, or to liquidate *balances* that may arise;—that the transfers of such symbols are transfers of property to the value of their respective denominations, just as the title deed to a farm expresses its value, and transfers the title by delivery; consequently, that a bank bill of a bank having an adequate capital, is just as valuable, and costs the bank issuing it just as much as its equivalent in gold and silver—as the bank in legal contemplation, and often in fact obtained its capital in the shape of commodities, or the right thereto, in exchange for gold and silver.

The propositions above demonstrated at once overthrow the grand arguments of the advocates of an exclusive specie currency, that bank bills are mere *simulations* of, and not actual values in themselves. If a Bank possesses 100,000 bushels of wheat, worth $100,000, it may issue its credits based upon this amount of wheat with the same safety as upon the possession of so much gold, as all it has to do is to convert the wheat into gold, with which it can redeem its obligations when presented. So a Bank, with bills receivable to the amount of $100,000, which are to be paid in gold and silver or commodities, may with safety issue its own notes based upon such bills, as their payment will put it in funds to take up its own issues. If the public demand gold and silver from the Bank, the Bank can demand gold and silver of the public. But the obligations being mutual, they nearly balance each other in the long run, so that gold and silver are only wanted to make good any balances or want of commodities possessed by the party issuing its credits.

The greater part of the exchanges of society are effected not only at much less cost by the use of symbols or evidences of property, but much more safely and conveniently. By using them, therefore, we act in obedience to a law, as imperative in its nature as that which originally established gold and silver as mediums of exchange,—a law that always constrains us to take the most economical method to reach a given result. Society can now no more return to an exclusive specie currency than it can reject the improved modes of locomotion—or the *power*, for the *hand* loom—or the printing press for the copyist. An exclusive specie currency is the type of a past age—of a state of barbarism in which social order is a despotism—in which commerce has but few ramifications and labor no subdivisions—one in which no currency can be used but gold and silver, for the reason that no man will trust his neighbor,—one in which a feeling of insecurity leads every man to hoard his capital. The complicated machinery by which the exchanges of society are effected, attest its wonderful progress, as much as the discovery and uses of the steam engine and the electric telegraph.

Could the exchanges of society be effected in no other way than by the use of the precious metals, the quantity required for currency would be so great that a very considerable portion of the whole capital of a community would have to be set apart for this purpose. The expenses of commerce and trade, and the price of products both to the producer and consumer, would be vastly increased, while the amount produced would be reduced in like ratio. The ship that took a cargo from New York to Liverpool, would have to take in addition, an amount of gold and silver equal to the whole value of her return cargo. So in our domestic commerce. For all the produce brought to the seaboard an equal amount of gold and silver would have to be sent into the interior. All importations into the interior would in like manner have to be paid in advance. The requisite amount of precious metals could only be supplied by reducing the amount of commodities to a mere fraction of the present production.

It is a well established principle that the extent of production depends entirely upon the ease and economy with which exchanges of products can be made. In fact, the work of effecting exchanges absorbs the greater part of the labor and capital of the world. Our ships, our canals, our roads of all kinds, are mere instruments in effecting exchanges of products. The cost of transportation or of exchanges, as a general rule, make up by far the greater part of prices paid by the consumer. Corn, to-day, is selling in Illinois at a shilling a bushel. It is worth six shillings in New York City. Five-sixths of the whole cost in this market is due to the expenses of effecting an exchange. Any improvement that reduces the cost of this item, increases the profit to the producer and reduces the cost to the consumer—the saving effected being divided between them. This fact may be illustrated in a large scale by the effect of railroads upon prices. They reduce the cost of transportation, over the old mode by ordinary roads, *five-fold*. The farmer is well content, if he can put in his pocket one-half of the amount saved. The other half is the gain of the consumer. The advantage is mutual, though the price, at which the article is sold to the consumer, is only about one-half its former cost.

And here we touch the secret of the effect of the use of symbols of value upon prices. We are told that *paper* money stimulates prices. This is very true. If a person can obtain what he wants without the intervention of an amount of property equal to that of the article desired, he can afford to pay a higher price for it, for the reason that he may keep all his capital actually employed in his business. One-half of the amount saved he can well afford to add to the price of an article, provided he can put the other half into his own pocket. If a farmer, by the simplification of exchanges, can obtain one dollar per bushel for his wheat instead of fifty cents, his land becomes twice as valuable, and he can afford to pay a double price for such as he may wish to purchase. All other kinds of property rise in like ratio, for the reason that those purchasing can afford to give a larger amount of products in exchange. The increased prices of commodities, therefore, consequent upon the use of symbols of value in effecting exchanges, is direct testimony in favor of their use over that of gold and silver, and the extent of such increase is the measure of the value of the former over the latter, as *currency*. Were the result of them to reduce prices, this fact would be sufficient reason for condemning them without a hearing.

Illinois Central Loan.

The directors of this Company have altered in some respects the recent proposition for a loan. The amount required is $3,200,000. The Bonds of the Company for this amount will be issued in sums of $1,000 each, payable in ten years, dated Feb. 20, 1858, bearing interest at the rate of 7 per cent. per annum, payable semi-annually.

The subscriptions to the loan will be payable at par, with accrued interest charged, as follows.

20 per cent. on the 20th of February, 1858,
20 per cent. on the 20th of March, 1858,
20 per cent. on the 20th of April, 1858,
10 per cent. on the 20th of May, 1858,
30 per cent. on the 20th of August, 1858.

As it is impossible to determine before the respective days on which the options expire how many shares the Company will have at its disposal, the obligations to issue bonds must be limited by the number of shares at its command. The distribution of the bonds will be in proportion to

each subscription, with the exception of the subscriptions of holders of existing optional rights, who will have the preference as subscribers to this loan, provided their subscriptions are made prior to the 18th December next.

For each bond of $1,000 thus subscribed and paid for, a certificate will be issued securing the right to subscribe for 25 shares of the capital stock of the Company, which right will expire on the 20th day of February, 1861.

Each Bond will be received at par with accrued interest to the extent of $40 per share, on 25 shares, when the optional rights thus issued are converted.

All money received on the conversion of these optional rights into shares, will be applied to the creation of a sinking fund, which shall be invested in the above Bonds when obtained at or under par, and all bonds received in payment will be cancelled.

Should the whole of this proposed loan not be subscribed, and it becomes therefore necessary, in order to pay the floating debt of the company, to assess the stock to make up the deficit, these bonds will be received for the installment, at par, with accrued interest; the holders of the bonds retaining the optional rights issued with the same.

Any obligations of the company, excepting coupons due in September and October, maturing previous to the 1st January, 1859, will be received in payment for subscriptions.

On the Use of Coal in Locomotive Engines.--Delano's Method for Burning Coal.

The necessity on most of our railroads for a cheaper fuel than *wood*. (which may now be said to be almost universally used), is already imperative. The price of wood has come to be so high, that this item of cost of running our roads is greater in this country than any other. In many parts of it, the forests are disappearing at a rate so rapid as to threaten, in a short time, to leave our roads without motive power, unless a substitute be provided.

This substitute must, of course, be the mineral coal—either in their *raw* state, or in the shape of *coke*. In England, coke, we believe, is universally used. In this country, unfortunately, we have no good coking coal accessible to the great body of our roads. The ingenuity of our scientific and practical men has, consequently, been directed to attempts to use anthracite and bituminous coal in their raw state. In both of these attempts very serious obstacles have been encountered. Those to the use of anthracite coal are well understood by almost every one at all acquainted with its use. It ignites with difficulty and slowly. At the same time it is liable by a very slight disturbance to cool suddenly down, rendering it very difficult to maintain combustion with that uniform intensity necessary to the operations of a railroad. From the small amount of gases evolved, and from their imperfect combustion, a very intense and concentrated heat is required in the fire-box, under which it is rapidly destroyed. The gases acting chemically upon the iron, prove very destructive to it. Another objection is the tendency of anthracite coal to *scale off* when exposed to sudden heat. The small particles thus thrown off, are drawn with great force against the tube sheet, and through the tubes, and rapidly cut them away by imping ing upon them.

These are some of the causes which have prevented the use of *anthracite* coal to any considerable extent, and will, probably, prove insurmountable objections, providing the difficulties in burning *bituminous* coal can be overcome.

One of the great objections to the use of bituminous coal has been the imperfect combustion that is effected, in consequence of which, a very considerable portion of the most valuable combustible matter is thrown off in the shape of gases and smoke. The loss sustained would not be so much considered, could the smoke nuisance be got rid of. But this can only be done by consuming it in the furnace. A double result is thus obtained :—The full effective power of the coal is utilized, while the product of combustion are gases imperceptible to the eye and entirely innoxious.

It is, therefore, in this matter of burning smoke and the gases in which the whole problem of burning bituminous coal is embraced. *Smoke* is unconsumed gases mixed with particles of fuel drawn through the flues and smoke stack by the force of the *exhaust*. When the combustion is imperfect, the gaseous constituents of the coal being volatized, roll out of the top of the chimney or smoke stack in immense and blackened masses. The earthy matter settles down upon the grate, clogging it up, shutting off an adequate supply of air from the furnace. The present mode of burning bituminous coal being in direct violation of the economic and scientific mode of burning it, the want of success in its adaptation to locomotive engines is not to be wondered at. To help as far as possible in this matter, we propose to state the well known natural laws according to which combustion of bituminous coal must proceed, and indicate a mode of burning it exactly consistent with these laws.

In the first place, it is well known that a step necessarily precedent to the combustion of *bituminous* coal is its separation into its constituents of gases and carbon; or the volatile from the solid matter. Neither of these can be consumed while in chemical union. Until the gaseous constituents are evolved, the whole mass remains black and at a low temperature. The process of volatilization is the most cooling one in nature, as every one can easily satisfy himself by pouring a few drops of ether or chloroform into his open hand. When raw coal is fed into a furnace, in the common mode of fireing, the first duty it is called upon to perform is to volatilize the gaseous constituents of the fuel. In this duty, a very considerable amount of the heat is changed from a *sensible* into what is termed a *latent* state. Unless, therefore, the gases contained in the coal can be consumed, a very considerable portion of the fuel actually burned is required to get rid of the portions that are *not* burned, although highly inflammable and forming a very considerable portion of the efficient power of the coal. When the gases are not burned, one-third part of this efficient power is wasted, in addition to the heat required to throw off this waste. It is for this reason that the product of a ton of coal, in *coke*, though weighing only about 1,400 lbs., will evaporate a larger amount of water, than the raw coal with all its gases burned in the common method. In England where coking coals are abundant, coke is exclusively used in locomotive engines, although could all the constituents of coal be entirely consumed, their evaporative power would be at least one-third greater than that of coke.

Coal gas is of two kinds—*carburetted* hydrogen, composed of two volumes of *carbon* and one volume of *hydrogen* vapor; and *bi-carburetted* hydrogen, composed of *two* volumes of each. The respective weights of the two gases are as 1 to 6,—that of the product, carburetted hydrogen, being 8; and that of bi-carburetted hydrogen being, consequently, 14. The bulks of both products are the same as that of *one* of the constituents, hydrogen. Combustion results from bringing these gases, under great heat, in connection with *oxygen*, with which they unite in certain proportions. Thus: oxygen unites with carbon in proportion of two volumes of the former to one of the latter,—the product being *carbonic acid*. But as oxygen forms only one-fifth part, in bulk, of atmospheric air, it follows therefrom, that to effect a complete combustion, ten volumes of air must be supplied to one of *carbon*. It is also known that oxygen unites with hydrogen in proportion of 8 of the former to 1 of the latter. To consume an atom of hydrogen, therefore, 8 atoms of oxygen are required, or 40 volumes of atmospheric air: that is to say, a furnace requires 18 volumes of air to one of the gases to be consumed. Could this quantity be supplied with sufficient rapidity and be properly distributed, both of the constituents of carburetted hydrogen would be consumed.

This statement which is based upon the well ascertained principles of burning coal, will be confirmed to practical experience by the fact, that the product of a ton of coal in coke, contains more evaporative power than a ton of the raw coal as ordinarily burned, although a very considerable part of the volatile matter thrown off, to reduce the coal to coke, is the most valuable portion of the coal for the purposes of generating steam, when properly burned.

The degree of economy in the burning of solid *carbon* also depends very much upon the free supply of oxygen. The products of the union of carbon and oxygen are *carbonic acid* and *carbonic oxide*. The two differing in the fact, that carbonic acid contains *two* atoms of oxygen to one of carbon, while carbonic oxide contains one atom of each.—Combustion is perfect in proportion to the amount of oxygen consumed; consequently, a much greater degree of heat is evolved, when carbonic acid is the product, than when carbonic oxide is. When the draft is poor, or when the supply of air is small, the greater part of oxygen in it, will combine with the carbon on first coming in contact with the fire, and result in *carbonic acid*. What remains is converted into *carbonic oxide* on passing up through the fire, with necessarily a very feeble combustion.

It is not till quite recently that much attention has been directed to the economy in the consumpofon of coal. In steamboats and stationary engines, where the smoke nuisance does not cause so great an annoyance, the only point aimed at has been to get up the requisite pressure of steam, no matter at what cost. But coal cannot be used in locomotive engines unless some contrivance be hit upon to consume its gases. The necessity for its use has, consequently, given a stimulus to investigation and experiment, which have brought out a large number of engines, with different contrivances, possessing different degrees of merit,

though all of them based upon a false method of feeding the coal into the furnace. By feeding coal through a door, upon an ignited mass, the first result is to *pack* the coal upon which it falls, thereby checking the supply of air, and consequently combustion. The first effect of the heat upon the raw (bituminous) coal is to *fuse* it into one dense mass, cutting off the flow of air almost entirely, till the volatile matter be driven off. But the process of volatilization is, as we have shown, the most cooling one known to science. Unless, therefore, the gases can be consumed, every charge of fuel tends directly and powerfully to absorb the heat, cool down the furnace, and reduce steam pressure. The opening of the door of the furnace produces similar results, by admitting a very large volume of cold air, and checking the draught. This mode of feeding coal to a furnace being a *false* one, all plans for overcoming the evils felt to exist, must of necessity partake of the defective principle upon which they are based. A principle radically wrong cannot by any ingenuity be made to produce the results of a correct one.

Now, it has always been known that the only correct mode of burning coal is, to feed it *up* against an ignited mass instead of feeding it *upon* one. By this method, assuming adequate mechanical contrivances, a free supply of air can always be made to be present at the very moment, and at the very point at which, the gases are liberated. The gases and the air ascend together against the ignited mass—consequently all the conditions for their perfect union and combustion fully meet. Every charge lifts and breaks up the superincumbent mass of ignited coke, allowing currents of air to play freely through it, securing a supply of oxygen to the solid part of the fuel sufficient to produce the chemical combinations necessary to the most perfect combustion. By this mode of burning nothing is lost. The furnace is not forced to perform a particle of useless labor. Every atom of combustible matter may be utilized. It, in fact, brings us to the end of our tether in this direction, for we cannot go beyond natural laws.

There are other advantages resulting from this mode of supplying coal, not so striking, indeed, but of very great value. As every charge tends to lift the coal from the grate, this is kept clear of ashes or cinder. Whatever cinder may be formed is pretty certain to find its way to the top of the fire, or to roll off to the side of the fire box, where it can be readily removed. The ignited mass being constantly lifted from the grate by charges of fresh coal, it is never exposed to intense heat, which is so destructive to the grates of the coal-burning engines that are in use. There being no occasion for opening the door of the engine while in motion, a great saving is effected over engines fed in the ordinary manner.

The principle of burning coal which we have described being a correct one, whatever results from its application must be in harmony with it. For the same reason where a false principle is attempted to be put in practice, all the contrivances for its application must partake of its faultly character. The first successful attempt to burn coal by supplying it to the furnace *against* an ignited mass, instead of upon one, has been made by Mr. Howard Delano, a skillfull and practical mechanic of Syracuse, in this State. His contrivance is very simple, at the same time very effective. It can be described, so as to be well understood, without the use of a diagram. In an old engine, a section is cut out of the bottom of the grate corresponding to the size of the feeding box—say 13 or 14 inches square. Fitted to the space, cut out, is a moveable grate to which is attached the feeding box. On drawing back the grate, the box filled with coal occupies its place. By very simple contrivance, the bottom of the box is thrown up to a lexel with the grate, discharging its contents directly into the furnace. The box is then drawn forward to receive another charge, the bottom of it remaining up till the moveable grate gets into place. The bottom is then dropped down, and the box made ready to receive another charge. The cost of attaching this apparatus to wood engines will not exceed $250. The contrivance is exceedingly simple, not liable to get out of order, and is very easily worked.

It will be seen that the improvement described relates only to the burning of coal. The mode of utilizing the heat evolved is another matter. Whatever improvements may have been made in the structure of furnaces for economizing heat, will be all the more valuable with Delano's method of burning the fuel. It is the great step towards realizing the result that all have been seeking to achieve. In fact, it leaves nothing for improvement as far as the principle is concerned, and little in way of the mechanical contrivances, as upon a new engine the additional cost of attaching the apparatus will hardly exceed $100. The improvement can as readily be attached to engines constructed for the burning of coal as of wood, leaving the relative value of the different improvements that have been made for economizing heat, very much the same.

Several engines, with Mr. Delano's improvement, are in use, with results corresponding to the value of the principle which he brought into practice.

Cumberland Valley Railroad.

We have received the report of the managers of this road for the fiscal year ending September 30, 1857. The following is a statement of income for the year as compared with that of 1856:

	1856.	1857.
From passengers	$63,751 37	$68,613 27
" freight	90,805 19	114,321 00
" mails	5,200 00	5,200 00
	$157,756 56	$188,134 27

—showing an increase of receipts from passengers of $4,861 90; and from freight, of $23,515 05—making a total increase of $28,376 95.

The following are the receipts and expenditures for the year:

RECEIPTS.

Cash and cash items, Oct. 1, 1856		$50,753 20
Revenue from tolls	$188,134 27	
Do. rents and interest	1,392 29	
		189,426 56
Assets and materials sold		3,290 33
Real estate		350 00
First preferred stock		9,100 00
		$252,920 09

EXPENDITURES.

Expenses and for debts due Oct. 1st, 1857, and for renewal of Harrisburg bridge	$136,551 84
Dividends and stocks	69,866 67
Interest on Mortgage Bonds	800 00
Tolls due	2,524 57
Cash on hand, Oct. 1, 1857	43,177 01
	$252,920 09

The following is a statement of expenses, including value of materials, for the year:

Repairs of road	$19,796 14
" engines and cars	9,781 90
" Harrisburg bridge	15,108 43
" buildings, machinery, etc.	1,768 56
Fuel for engines and shops	13,512 16
Transportation expenses	8,193 09
Salaries	5,105 29
New locomotive and baggage cars	10,500 97
Miscellaneous	17,541 62
Renewal of Harrisburg bridge	36,183 45
Real estate	500 00
	$137,991 61

GENERAL STATEMENT.

	Dr.	Cr.
Cost of road and appurtenances	$1,226,675 38	
Materials on hand 1st October, 1857	10,319 98	
Assets	1,684 85	
Due for tolls, etc.	2,524 57	
Bills receivable	1,300 00	
Cash on hand	43,177 01	
	$1,285,681 79	
First Preferred Stock, 7,328 shares		$366,400 40
Second do. 6,220 do.		311,000 00
Unpreferred Stock, 7,740 do.		387,000 00
Do. held by Company, 1,700 do.		85,000 00
First Mortgage Bonds		36,500 00
Second do. do.		41,500 00
Due for Divid'ds and Interest on Bonds		38,462 00
Profit Account		7,178 25
Due for materials and labor		12,641 54
		$1,285,681 79

This road has been in operation for 21 years; but was so frail and unsubstantial previous to its reconstruction in 1852, as to be of little value either to the public or its owners. Since then the gross current receipts have been as follows:

1852	$123,357 10
1853	141,206 82
1854	152,389 00
1855	147,089 36
1856	161,350 64
1857	188,133 89

Several of the piers of the Harrisburg bridge, which were injured by the ice during the freshet in the Susquehanna last spring, have been substantially repaired, and all the piers, 22 in number, have been newly capped with heavy white oak timber. Eighty tons of new iron have been used during the year; a new freight engine purchased; and the roadway, station houses, cars, engines and machinery put in excellent condition for the transaction of the business of the coming year. This road has no floating debt, and consequently is not materially affected by the financial embarrassments which are pressing so heavily upon all the business of the country.

In the last report of this company, an abstract of which we gave in the *Journal* of January 31st, a plan was proposed by which the first and second preferred stocks of the company might be converted into mortgage loans. The time for making this conversion was limited to the 9th October last. Up to the 30th September, the holders of first preferred stock to the amount of $36,500, and of second preferred stock to the amount of $41,500, did make the conversion. The time for the exercise of this option has been extended one year. The president, in concluding his report, says: "Your road is so permanent in its location and structure, that it cannot be extensively injured by fire or flood. Its business is so certain and local in its character, as not to be materially affected

by any revulsion in trade or commerce; and its usefulness is so felt by those whose carrying it does, as to have secured for it the good feeling and support of the entire population of the richest and most densely settled valley of the State."

The officers of the road are: Frederick Watts, President; O. N. Lull, Superintendent; and Edward M. Biddle, Secretary and Treasurer.

Hartford, Providence and Fishkill Railroad.

We have received the report of this company for the fiscal year ending October 1st, 1857, by which it appears that the receipts up to that date have been:

From passengers		$206,563 08
" freight		148,377 23
" rents, mails and express		12,954 80
		$367,895 11

And the expenses were:

For repairs of road	$37,923 04	
" " engines & cars	25,757 37	
" salaries and labor	69,945 90	
" oil and fuel	54,119 15	
" miscellaneous	13,986 73	
		201,732 19
Net earnings		$166,162 92

The receipts during the year, from all sources, have been as follows:

From income as before stated	$367,895 11
" stock sold	1,739 90
" wood and materials	17,258 14
" sundry accounts	84,478 30
Cash on hand October 1, 1856	2,817 32
	$474,188 77

And the payments have been:

For operating expenses	$201,732 19
" construction	34,120 37
" sinking fund of cities of Hartford and Providence	12,740 72
" bills payable	57,155 75
" relaying and renewing superstructure, bridging, etc., old road	13,273 21
" miscellaneous	11,865 65
" interest on bonds and float'g debt	140,247 80
Cash on hand October 1, 1857	3,053 02
	$474,188 77

GENERAL STATEMENT.

Stock		$1,542,539 98
Preferred Stock issued	$500,000	
" hypothec'd	101,200	
Preferred Stock sold		398,800 00
Bonds issued	$2,107,730	
Of which are hypothec'd.	337,000	
Bonds sold		1,770,780 00
Notes and accounts payable		411,894 80
Premium and interest received on bonds of cities of Hartford and Providence, sold		100,324 84
Balance of Profit and Loss		92,325 00
		$4,316,614 62
Construction (old road)		$1,243,948 60
" new road in Conn.		1,473,021 19
" " " R. I.		963,663 33
Payments to contractors on unsettled contracts for construction		219,431 73
Equipment		302,454 38
Materials on hand, wood, etc.		22,676 00
Sinking Fund, city of Hartford		29,323 22
" " " " Providence		19,453 92
Sundry notes and accounts		27,060 98
Cash from agents	$12,528 25	
Cash on hand Oct. 1, 1857	3,053 02	
		15,581 27
		$4,316,614 62

By reference to the above, it will be seen that the amount now on deposit with the trustees of the cities of Hartford and Providence is $48,777 14—of which $12,740 72 has been deposited the past year—and constitutes a sinking fund for the redemption of the company's bonds for one million, which were exchanged with the cities, and mature in 1876. Of the notes and accounts payable, $353,053 19 is secured by bonds and preferred stock. In the table of assets and liabilities the excess of the former over the latter is stated to be $192,649 84.

To the gross earnings, as above, should be added the further sum of $843 22 being mostly balances due from connecting roads on September business, but not paid over to the treasurer until after the closing of the books. This will make the gross earnings amount to $368,738 33.

There are also sundry bills on file, amounting to about $6,500, which accrued previous to October 1st, and chargeable, partly to the renewals of the old road, but mostly to the working expenses of last year. On the other hand the payments of the year include bills to the amount of $17,000, for working expenses, incurred in previous years. By adding the mean of these two sums to the net earnings, will give in round numbers $177,500, as the result of the year's business. This will reduce the working expenses to $191,200, or 62.1 cents per mile run.

A comparison of the gross earnings of the past, with the previous year, shows an increase of the former over the latter of $28,152, while the net earnings have increased only $8,000.

The equipment of the road consists of 16 locomotives; 20 passenger, 8 baggage, and 238 freight and gravel cars.

The number of passengers carried was 362,511. Number of miles run by passenger trains, 204,782; by freight trains, 103,176—total miles run, 307,958.

The road-bed has been much improved at various points; by the renewal of ties and other wooden parts of the superstructure—more than 30,000 new ties having been laid during the past two years. A new bridge at Stafford's Pond, near Willimantic, has been completed, and improvements made in the buildings at various stations, while cheap new buildings have been erected at others for the accommodation of the freight business. A small dwelling house for track men has been built at Bolton, and the turn-table at Hartford rebuilt. New buildings to be used for various purposes are needed at different points upon the line. The item in the expense account, for rent of stations represents interest at 6 per cent. on $82,475—a small portion of which judiciously expended would supply the necessary buildings, and thus save nearly the whole expense now incurred for rent.

The following gentlemen have been elected directors for the ensuing year:

Directors—Byron Sprague, James G. Anthony, Henry Lippit, William Sprague, Providence; Stephen Harris, Jr., Phenix; Charles H. Warren, Boston; Joseph Trumbull, William H. Imlay, Alfred Smith, Calvin Day, Hartford; John P. Elton, Waterbury.

Byron Sprague, *President.*

Edward M. Bridgman, *Secretary & Treasurer.*

Public Debt of Virginia.

The following is an official summary of the funded debt of Virginia on the 30th Sept., 1857:

Amount of certificates of registered debt		$14,469,015 63
Deduct amount of same to be redeemed as provided by Commissioners of the Sinking Fund		228,100 00
Amount of registered debt		$14,240,915 63
Amount of certificates of debt issued in the form of coupon bonds and payable in New York		11,367,000 00
Amount of ditto (5 per cent.) payable in London		1,875,000 00
Actual public debt, 1st Oct., 1857		$27,482,915 63

Trustees of Railroads for Vermont

We published a few days ago an act recently passed by the Vermont Legislature relating to Trustees of Railroad Mortgages. The following act, also passed by the same body, we consider full as important as the previous one:

An Act to expedite proceedings in Chancery in regard to the Trustees of Railroad Mortgages.

It is hereby enacted by the General Assembly of the State of Vermont.

Sec. 1. Whenever the owners or holders of notes, bonds, or obligations secured by a railroad mortgage, to an amount of not less than fifty thousand dollars, and in number five or more, shall deem any trustee of such mortgage to be an unsuitable person to administer such trust, they may apply by petition to any chancellor for the removal of such trustee, and shall set forth in a general manner the grounds and reasons for such removal. The court shall thereupon appoint some short day for hearing such petition, and shall give due notice thereof to the trustees of such mortgage and to all other persons interested. The court shall take especial care to give notice of such application, and of the time and place of hearing to all persons interested who reside out of this State, by publication in one or more daily newspapers published in Boston and New York.

Seb. 2. Upon the hearing, the petitioners and trustees and all other witnesses shall be examined orally before the chancellor. The court shall examine as to all alleged breaches of trust, or neglects, or omissions of duty; as to the fitness and competency of the trustees; as to their holding any other offices or having any interests either of a public or private nature inconsistent in any way with the true interests of the *cestuique* trusts, or interfering in any way with the prompt, fair, and impartial discharge of the duties of such trusts; and generally as to all the circumstances or conduct of the trustees, which render it inexpedient for the interests of the trust to continue them in office. If upon such hearing the chancellor finds that such trustee ought to be removed, he shall decree his removal, shall appoint a new trustee in his place, and shall make such orders and decrees as to the transfer and conveyance of the trust property from the old to the new trustees, as to ascertaining the debts and liabilities of the old trustees and the payment of the same, as to the future management of the trust and the accounting thereon, and generally as to all other matters and things connected with such trust, as the exigencies of the case, the protection of the old trustees, and the security and welfare of the trust fund shall require.

Sec. 3. If the trustees so removed by the order of the chancellor shall see fit, they may within twenty days appeal to the Supreme Court: in which case the application and proceedings therein, and the minutes of the chancellor as to the testimony taken before him, shall all pass to the Supreme Court: to this end the chancellor shall take full minutes of the testimony taken before him.—Upon an examination of the papers and the testimony, the Supreme Court may, upon application and notice thereof, order the taking of further testimony if they see fit, or may affirm or reverse the order of the chancellor, and may proceed therein

as equity and Justice shall require. The appeal to the Supreme Court shall not operate to remove the new trustees, or continue the old ones in office, but the new trustees shall administer the trust till otherwise ordered.

SEC. 4. Whenever proceedings shall have been or shall be instituted in chancery, whether by trustees or *cestuique* trusts, under this act or otherwise, in good faith and for the benefit of the trust fund, the chancellor before whom such proceedings are pending may, if, in his judgment, he shall deem it just and equitable, order the costs and other expenses of such proceedings to be fixed before him and to be made, in whole or in part, a charge upon and be paid for out of the trust fund, so that each person intended to be benefited by such proceedings shall bear and pay his fair and just share of such costs and expenses.

Approved, November 10, 1857.

The Maryland Institute--Its Library, School of Design, &c.

The Maryland Institute is now enjoying a more than usual share of prosperity, and is gradually extending its sphere of usefulness in the improvement of its various branches. It was supposed at the commencement of the late exhibition that the revulsions of trade and consequent financial embarrassments would affect its revenue from that source to a serious extent, but the result has proved a more auspicious state of affairs than its most sanguine friends anticipated. The Library Department especially is daily increasing in interest, and is now one of the most popular institutions of its character in the city. The catalogue embraces more than 12,000 volumes, a goodly proportion of which are of a valuable and entertaining character. The average number of readers per day is about 300, and there are now more accounts opened than at any previous period. The Library is opened every day from 9 o'clock A. M., to 3 o'clock P. M., exclusively for ladies, and from 3 P. M. to 9 P. M., exclusively for gentlemen. On Saturday a most acceptable addition was received from Washington, through Hon. J. Morrison Harris, which consisted of 149 volumes. including the following works: Gale's and Seaton's Register of Congressional Debates, 29 volumes; Annals of Congress, 42 volumes; Congressional Globe, 38 volumes. These works afford a full and authentic history of Congress from its first to its thirty-third session, and contains matters of universal interest. Elliott's Debates, 5 volumes; Opinions of the Attorney Generals, 5 volumes; Finance Reports, 7 volumes; Jefferson's Works, 9 volumes; Works of John Adams, 10 volumes; Public Land Laws, Hickey's Constitution, May's and Moulton's Pensions and Bounty Land Laws. There are also other works of interest, besides which it is the intention of the Library Committee to add to its shelves the valuable publications of the day. Mr. John S. Selby is the librarian, and is assisted by Messrs. G. M. Conradt and Nicholas R. Selby.

Next in importance to the Library is the School of Design, which reopened at the commencement of last week under the most promising circumstances. The number of students already enrolled is 275, of which 65 are members of the Geometrical Class, 173 of the several Elementary Classes, and the remainder in the artistic, mechanical, architectural and engineering classes.

Such a large number of students at the commencement or the resumption of studies is unprecedented, and attests the general interest for its important objects which is experienced by the general membership. All the students are young men who will average about 20 years of age, although some of them are not more than 14. The classes occupy the three lower rooms of the southern end of the building, all of which are spacious and supplied with every requisite for the prosecution of the useful art. Though the school has been in operation but a few years, it has already supplied the United States navy with nine engineers. Another graduate is now in Russia, having received lucrative employment from the Emperor in the engineering line. No one who passes through the apartments of this school when the students are at work can fail to perceive the great importance of such institutions. The rooms are opened on Monday, Wednesday, and Friday evenings, from 7 to 9 o'clock, and the sessions generally extend to four months. The charge is extremely moderate. The geometrical class are using a work entitled Practical Geometry, by Richard Cochrane. The principal of the school is D. A. Woodward, professor of drawing and of the artistic classes; J. M. Wampler, professor of the architectural, mechanical and engineering classes; Richard Cochrane, professor of the geometrical class; William S. Taylor, Thomas R. Jeffreys and Charles Gephart, of the elementary classes. The committee of managers on the part of the Institute consists of the following experienced artizans: C. W. Bentley, chairman, G. H. Hunt, W. W. Maughlin, John Jones, Hugh Sisson, Joseph C. Neilson and Nathaniel H. Thayer. Another interesting feature of the Institute and not the less important is the book-keeping department, under the instruction of J. Thomas Smith, Esq., who is well known as a model book-keeper. This department was reopened during last week, and now numbers 54 members, which is the largest number yet enrolled at any session. The members are from 14 to 25 years of age. The committee on book-keeping consists of Messrs. Woodward Abrahams, Thomas J. Hand, Adam Denmead, Samuel S. Mills and Charles Webb. The committee of the Institute invite the citizens of Baltimore, as well as strangers, to visit the building and be conducted through its various departments. They cannot fail to be interested as well as instructed. The Maryland Institute, under the direction of its present able and efficient President, and his coadjutors can scarcely fail to increase in interest, and to add much to the improvement of society at large.

British Metal Statistics.

The London *Enquirer* gives the following results of mining in Great Britain from the last report of the Mining Record Office:

In conclusion, we will point out the leading features of the statistical information given in the report now before us. First, as regards tin ore or "black" tin, we find the production in 1856 was 9,350 tons, being 603 tons over the production of 1854, when its average price per ton was £64, but which rose last year to £71, and produced a gross amount of £663,850. The average price of metallic tin rose from about £115 in 1854, to £134 in 1856, and has consequently enabled many mines to be worked, which would not otherwise have been possible. Notwithstanding this increased home production, the imports have risen from 2,251 tons in blocks, ingots, &c., in 1854, to 3,464 tons in 1856; besides 749 tons of regulus. With respect to metallic copper,we find that the United Kingdom produced in 1854, 19,717 tons; but in 1856, 24,257 tons. This latter quantity was the produce of 278,792 tons of ore, its money value being £1,744,516. During the same period the copper produced at Swansea from foreign ores was 3,455 tons in 1854, and 4,837 tons in 1856. The value of the copper produced at our British Smelting Works is given as amounting in 1854 to £2,331,804, and in 1856 to £2,846,803; the mean average price of the several varieties of metallic copper being in 1855 about £140, but in 1856, £125. With respect to lead and silver, it appears that more than four hundred lead mines have sold ore during last year. The produce of metallic lead in the United Kingdom in 1854, was 64,005 tons; and in 1856, 73,129 tons. The importations have also increased, being in 1855, 7,246 tons, and in 1856, 10,254 tons. These quantities were less, however, than those imported in 1853 and 1854.

The mean average price per ton of lead ore was in 1855, £14 4s. 6d.; and in 1856, £14 8s. The money value of the lead ore sold in 1855 was £1,311,971; and in 1856, £1,431,597. The mean average price of pig lead in 1855 was £23 3s. per ton; and in 1856, £24; the market value of the lead smelted in 1856 being £1,755,096. In addition to this the value of the silver extracted was £153,547. The iron manufacturer has made extraordinary progress during the last few years. The returns show that last year 10,483,309 tons of iron ore were raised, and 3,636,377 tons pig iron were produced. The mean average price of the ore was 11s. per ton, this giving £5,695,815 as the value of the iron ore produced in Great Britain during the year. The total produce of pig iron at £4 per ton gives a money value of £14,545,508. The last substance we shall notice is that of coal, the increase in produce being as remarkable as that of iron. In 1854, 64,661,401 tons were raised, and in 1856, 66,645,450 tons. At the average price of coals at the pit's mouth, this quantity gives a money value of no less than £16,663,862 for the year. The report contains a general summary of the value of the mineral produce of the United Kingdom in 1856, amounting in the aggregate to upwards of thirty millions sterling, the actual sum being £30,602,322, which includes £3,042,478, the estimated value of building stones about which there appears some little doubt. The market of the metals obtained from the furnaces amounted (excluding building stones) to £37,783,021. Such then, is the vast importance which our mineral industries have now assumed.

Memphis and Charleston Railroad.

The recent change of schedule, in connection with changes on the Georgia and South Carolina Roads, has reduced the traveling time between Huntsville and the North-Eastern, interior and seaboard cities, *fourteen hours*. Memphis is within two days' travel to Charleston and Savannah, less than three to Washington City, and within about one day to Montgomery. By Christmas the East Tennessee and Virginia Road will lack only 15 miles of completion. By Spring it will be completed, and then the traveling time to Richmond, Washington, &c., will be still further reduced. The Memphis *Eagle and Enquirer* says:

"We may form some estimate of what the profits of this road will be when all the links are completed, by exhibiting its earnings now without that connection, and without the equally important connections with Mobile and New Orleans. Notwithstanding the "stringent times," the passage earnings of the Memphis and Charleston Road have reached an average of *two thousand dollars per day*. For the month of October the business was as follows:

Passengers	$62,111 05
Freight	25,648 20
Mail	2,314 58
Express	688 49
	$90,762 32
Expenses	38,753 66
Net profits	$52,008 66

"This exhibit must be the more satisfactory to the friends of the road, when it is admitted that the earnings of all the other roads, North and South, have largely decreased with the depression of the business of the country. It also establishes the fact that this road, with proper management, will be a paying road, remunerating the stockholders, as well as increasing the trade and wealth of Memphis and all the country tributary to, and along which it passes."—*Huntsville Democrat.*

WANTED—the following numbers of "*American Railroad Journal*"—No. 44 of 1831—Nos. 43. 44, 45. 46, 47, 52 and title of 1836—Nos. 1 and 2 of 1837—No. 8 of 1844 and No. 13 of 1851.—Address stating lowest price to
G. P. PUTNAM, 321 Broadway, N. Y.

Railroad Iron.

THE subscribers, Agents for the Manufacturers, are prepared to contract for the delivery of Railroad Iron at any port in the United States or Canada, or at a shipping port in Wales.
WAINWRIGHT & TAPPAN,
Boston, June, 1851. 29 Central Wharf.

Railroad Iron.

THE UNDERSIGNED ARE NOW PREPARED TO enter into contracts to deliver Railroad Iron free on board at shipping ports in Great Britain, or at ports in the United States.
F. CHOTEAU, Jr., SANFORD & CO.,
May 17, 1852. No. 9 Nassau st.

F. S. CABOT & CO.,
NEW YORK BUYERS,
86 Cedar st., near Broadway,

BUY TO ORDER, merchandise of every description. They give especial attention to the purchase of Railroad materials, findings and supplies,, and having "nothing to SELL," whether patent articles or others, devote their entire energies to BUYING to the best advantage of those who employ them, feeling assured that they can serve purchasers much better than if they were also interested as sellers.

F. S. C & Co. make it an invariable rule not to accept commissions from the seller, while receiving pay from the buyer.

They refer to W. G. Lambert of A. & A. Lawrence & Co., Wm. L. King of Naylor & Co., New York; Geo. Baty Blake of Blake Howe & Co., Boston; David S. Brown of D. S. Brown & Co., Philadelphia; and others if required.

Address Box 1,179, New York. 37tf

RAILROAD IRON.

1,000 TONS Anti-Laminating Hammered Head Rails of the "Erie" Section, 57 lbs. per yard, here and to arrive For sale by

HENDERSON & KERNOCHAN,
13 Cliff st.,
41tf NEW YORK.

A. N. GRAY, Cleveland, O.,

RECEIVER AND FORWARDER of Railroad Iron, Chairs and Spikes.

Also, Cars, Locomotives, and all kinds of Machinery for Railroad purposes.

Office, next door to the Custom House Main street.

Railroad Iron.

THE undersigned, Agent for the Manufacturers, is prepared to contract for T Rails, of the usual patterns and weights, to be delivered on board ship in Wales.

He will also receive and forward orders for the purchase of ailroad Iron and Metals generally, through the medium of his rienda in London. For terms, apply to

JOHN H. HICKS,
April 1, 1853. 90 Beaver street.

Railroad Iron.

THE undersigned having leased the extensive works of the Cambria Iron Company, situated at Johnstown, Cambria County, Penna., and purchased all their personal estate are now prepared to execute at short notice orders for rails of any required pattern or weight, on the most liberal terms.

WOOD, MORRELL & CO.,
Johnstown, Cambria Co., Pa.
1y22 *Philadelphia Office:* North Penna. R. R. Building.

Railroad Iron.

THE undersigned, Agents for leading Manufacturers in Staffordshire and Wales, are prepared to contract for delivery board ship at Liverpool, or Welsh port.

C. CONGREVE & SON,
13 Cliff st., N. Y.

RAILROAD IRON.
The Crescent Manufacturing Company,
WHEELING, VA.,

ARE now prepared to execute, at short notice, orders for Rails of any required pattern and weight, and to re-roll old rails, on the most liberal terms Address

N. WILKINSON, Sec'y,
8tf WHEELING, VA.

Railroad Iron.

700 TONS, afloat, or in store, of "W. Crawshay's" make. For sale by

THEODORE DEHON,
10 Wall st., near Broadway.
16 NEW YORK.

Railroad Iron.

CONTRACTS for Rails, at a fixed price or on commission delivered at an English port, or at a port in United States will be made by the undersigned.

THEODORE DEHON,
10 Wall st., near Broadway, New York.
500 tons T rails on hand 54 to 57 lbs. per linear yard.

Railroad Iron.

2000 TONS Railroad Iron, weighing about 59 lbs. per yard, "Erie" pattern of G L and "Crawsnay," Manufacture, now on the way from the shipping ports in Great Britain to this port, for sale by

P. CHOUTEAU, Jr., SANFORD & CO.,
December 4, 1852. No. 9 Nassau street.

Railroad Iron.

THE Undersigned, Agents for the Manufacturers, are prepared to contract to deliver free on board at shipping ports in England, or at ports of discharge in the United States, Rails of superior quality, and of weight or pattern as may be required,

VOSE, LIVINGSTON & CO.,
New York, Aug. 1, 1855. 9 South William Street.

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MANUFACTURERS of warranted Cast Steel, superior quality, for Tools, Machinery, and Engineering purposes. Single and Double Shear, Blister, German Spring and Sheet Steel of every description—also, Cast Steel Files of high reputation, especially adapted for the use of Machinists, and Saws and Edge Tools of all kinds.

A stock of the above goods constantly on hand.

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IRON BOILER FLUES.
Lap-Welded Boiler Flues,

1½ to 7 inches outside diameter, cut to definite length, 2 to 20 feet as required.

Wrought Iron Welded Tubes,

From ⅛ to 5 inches bore, with Screw and Socket Connections. T's, L's, Stops, Valves, Flanges, &c., &c.

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In all their varieties.

BOILER PLATE,	CAR AXLES,
BOILER RIVETS,	RAILROAD IRON,
CUT NAILS and SPIKES,	PIG IRON, etc.

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August 16, 1854. 1y33

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THE undersigned, sole agents to Messrs. GUEST & Co., the proprietors of the Dowlais Iron Works, near Cardiff, South Wales, are duly authorized to contract for the sale of their G. L. Railroad Iron, and Common Bars, on most advantageous terms.

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CLARK & JESUP.

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RAILWAY AGENTS & COMMISSION MERCHANTS
DEALERS IN FOREIGN AND AMERICAN

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LOCOMOTIVE ENGINES
PASSENGER and FREIGHT CARS,
WROUGHT and CAST IRON CHAIRS,
1y60 SPIKES, CAR WHEELS, AXLES, TYRES, &c.

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Railroad Iron.

650 TONS 55a56 lbs. per yard, best Welsh Rails, GUEST & Co. make, now landing and for sale by

VOSE, LIVINGSTON & CO.,
9 South William st.,

Railroad Iron.

1.000 TONS best quality Welsh Rails "Erie" pattern, 58a60 lbs. per yard, now due at New Orleans, for sale by VOSE, LIVINGSTON, & CO.,
No. 9 South William st., N. Y.
October 18, 1856.

Railroad Iron.

1,000 TONS Railroad Iron, weighing about 58 lbs per yard, "*Erie*" pattern, of best quality Welsh make, now ready for delivery, for sale by

VOSE, LIVINGSTON & CO.,
August 1st, 1857. 9 South William St.

RAILROAD IRON.
THE RENSSELAER IRON COMPANY,
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OFFER Rails of their own manufacture deliverable as may be desired by purchasers.

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will leave Pier foot of Duane street,
as follows, viz:—

DUNKIRK EXPRESS, at 8 a. m. for Dunkirk and Buffalo, and intermediate stations.

ROCKLAND PASSENGER, at 3 p.m., from foot of Chamber st., via Piermont, for Suffern's and intermediate stations.

WAY PASSENGER, at 4 p.m., for Newburgh, Middletown and intermediate stations.

EMIGRANT, at 5 p.m., for Dunkirk and Buffalo and intermediate stations.

☞ The above trains run daily, Sundays excepted.

NIGHT EXPRESS, at 5 p.m. for Dunkirk and Buffalo, every day.

These Express Trains connect at Elmira, with the Elmira, Canandaigua and Niagara Falls Railroad, for Niagara Falls; at Binghamton with the Syracuse and Binghamton Railroad, for Syracuse; at Corning with Buffalo, Corning and New York Railroad, for Rochester; at Great Bend with Delaware, Lackawanna and Western Railroad, for Scranton; at Hornellsville with the Buffalo and New York City Railroad, for Buffalo; at Buffalo and Dunkirk with the Lake Shore Railroad or Cleveland, Cincinnati, Toledo, Detroit, Chicago, etc.

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☞ PASSENGER TRAINS leave the Central Depot, foot of South Water street, CHICAGO, daily as follows:—

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3.45 P.M.—EVENING EXPRESS.—Making same connections as above.

NO TRAIN SATURDAY EVENING.

☞ ONE TRAIN SUNDAY, 8.45 P.M.

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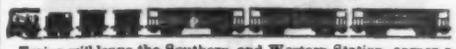
SOUTH AND WEST.



Trains will leave the Southern and Western Station, corner of Broad and Prime streets, Philadelphia, at 8 30 am. 12 45, 3 and 11 pm.

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From New York		Wilmington	$15 50
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From Philadelphia	to	Wilmington	14 00
do	do	Norfolk	6 50
do	do	Petersburg	9 00
do	do	Richmond	5 00

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do	do	Louisville	19 00
From New York	to	Indianapolis	19 00
From Philadelphia	to	Cincinnati	16 00
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NEW YORK, December 1, 1856.

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SEALED Tenders will be received at this office until TUESDAY, 15th December next, at noon, for the Grading, Masonry and Track-laying of those portions of the E. & N. A. Railway between Hampton and Sussex Vale, a distance of about 24 miles, and between Moncton and Salisbury, a distance of about 16 miles.

The line will be laid out in five sections of about eight miles each, for which separate tenders will be received.

Rails, Chairs, Spikes and Sleepers will be furnished by the Commissioners. All other material and plant to be found by the Contractors.

Tenders must be accompanied with names of responsible parties willing to become security for the performance of the Contract, or other satisfactory evidence of competency to perform the work. The Commissioners do not bind themselves to accept the lowest tender.

Plans, Specifications and Forms of Tender may be seen at the Engineer's Office on and after 1st of December next, and in the meantime intending offerers will have an opportunity of examining the line, a large portion of which is approximately located. The works on the line generally will be of a substantial character, well worthy the attention of responsible contractors.

R. JARDINE, Chairman.

RAILWAY COMMISSIONER'S OFFICE, *St. Johns, New Brunswick, Oct.* 24, 1857.

PROFESSIONAL CARDS.

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Sylvester W. Barnes,
Chief Engineer Watertown and Madison R.R., Madison, Wis.

Edward Boyle,
Chief Engineer, 2d, 3d, and 9th Avenue Railroads New York Office 123 Chambers st.

Clement, Wm. H.,
Ohio and Mississippi Railroad, Cincinnati, Ohio.

James Convers,
Chief Engineer Galveston, Houston & Henderson Railroad, Galveston, Texas.

Alfred W. Craven,
Chief Engineer Croton Aqueduct, New York.

Charles W. Copeland,
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64 Broadway, New York.

Davidson, M. O.,
Civil and Mining Engineer. Office Swanton Coal and Iron Co., 51 *Exchange Place,* BALTIMORE, Md.

C. Floyd-Jones.,
Division Eng'r 3d and 12th Divisions, Illinois Central R. R., *Vandalia, Ill.*

Gay, Edward F.,
State Engineer, Philadelphia, Pa.

Gilbert, Wm. B.,
Syracuse and Binghamton Railroad, Syracuse, N. Y.

Robert B. Gorsuch,
Chief Engineer of the Llanos de Apam R. R., MEXICO.

Grant, James H.,
Nashville and Chattanooga R. R., Nashville, Tenn.

Theodore D. Judah,
Chief Engineer, and Commissioner of San Francisco and Sacramento Railroad, and of San Francisco and Sacramento Northern Extension Railroad, SAN FRANCISCO, Cal.

S. W. Hill,
Mining Eng'r and Surveyor, Eagle River, Lake Superior.

Lord & Wright,
Counsellors at Law, Cincinnati Ohio. 18

Ellwood Morris,
Civil Engineer, Franklin Institute, Philadelphia.

Mills, John B., Civil Engineer,
Lake Ontario and Hudson R. R. R., 20 Exchange Place, N. Y.

Osborne, Richard B.,
Civil Engineer, Office 73 South 4th st., Philadelphia.

Theodore W. Robbins,
Civil Engineer and Land Surveyor, Jersey City, N. J.

W. Milnor Roberts,
Civil Engineer, Carlisle, Pa.

Augustus Schwaab,
CIVIL ENGINEER, MACON, GEORGIA.

J. S. Sewall,
CIVIL ENGINEER,
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Charles L. Schlatter,
Chief Engineer Brunswick and Florida Railroad, Brunswick, Georgia.

P. Sours,
Engineer Raritan and Delaware Bay R. R., Red Bank, N. J.

J. S. Shipman,
Civil Engineer, 63 Trinity Building, 111 Broadway, N. Y.

Shanly, Walter,
Grand Trunk Railway, Toronto, Canada.

Steele, J. Dutton,
Pottstown, Pa.

Charles B. Stuart,
Consulting Engineer, 22 William str., New York.

Trautwine, John C.,
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VERMONT—T. W. Bruce, Middlebury.
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PENNSYLVANIA—Robert Ralston, Philadelphia.
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OHIO—Charles Bradburn, Cleveland; B. Urner Cincinnati.
MISSOURI—Alonzo Cutler, St. Louis.
ILLINOIS—C. N. Holden, Chicago; George W. Woodward Galena.
KENTUCKY—James G. Bread, Louisville.
SOUTH CAROLINA—H. S. Hayden, Charleston; H. E. Nichols Columbia.
ALABAMA—R. S. Bunker, Mobile.
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LONDON, 1857.

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SHEET NO.			SHEET NO.			
1.	General Table for all Bases and all Slopes.		13.	for Base 18ft.	Slop.	1½ to 1
			14.	" 20	"	1½ to 1
2.	For Side Hill Cuts and Fills		15.	" 24	"	½ to 1
3.	Base 12 ft.	Slopes 1½ to 1	16.	" 24	"	1½ to 1
4.	" 14	" 1½ to 1	17.	" 25	"	1½ to 1
5.	" 15	" ½ to 1	18.	" 26	"	1½ to 1
6.	" 16	" 1 to 1	19.	" 28	"	½ to 1
7.	" 15	" 1½ to 1	20.	" 30	"	1 to 1
8.	" 16	" ½ to 1	21.	" 30	"	1½ to 1
9.	" 16	" 1 to 1	22.	" 30	"	1½ to 1
10.	" 18	" ½ to 1	23.	" 32	"	1 to 1
11.	" 19	" ½ to 1	24.	" 22	"	1½ to 1
12.	" 18	" 1 to 1				

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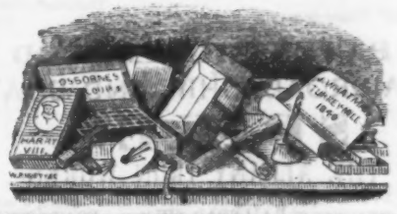

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THE subscribers have formed a Co-Partnership under the name of DRAKE & CARTER, for the purpose of continuing the business of Buying and Selling *Stocks* and *Bonds*, Loaning Money on Stocks and other Securities, making Collections, &c.

The general partners of the concern will be JAMES M. DRAKE and GALEN A. CARTER. EDWARD B. LITTLE Esq. has contributed Fifty Thousand Dollars as special partner.

D. & C. will occupy the Offices No 49 MERCHANTS' EXCHANGE, (entrance on Wall St.)

JAMES M. DRAKE. GALEN A. CARTER.

MACHINE BELTING,

STEAM PACKING,

ENGINE HOSE,

AND ALL OTHER ARTICLES OF

VULCANIZED

INDIA RUBBER

ADAPTED TO

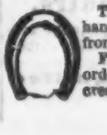
Mechanical and Manufacturing Purposes.

THE superiority of these articles manufactured of vulcanized Rubber, is established. Every BELT will be WARRANTED superior to LEATHER—at one third less PRICE. The STEAM PACKING is made in every variety, and warranted to stand 300 degrees of heat. The HOSE never needs OILING, and is warranted to stand any required pressure. Also Gas Tubing, and Tubing for RAILROAD CAR BRAKES.

Pamphlets containing directions, prices, etc., can be obtained at our warehouse, or by mail. Address

JOHN H. CHEEVER, *Treasurer,*
New York Belting and Packing Company,
No. 6 Dey st.,
1y15 NEW YORK.

Patent Machine Made Horse-Shoes.



The Troy Iron and Nail Factory have always on hand a general assortment of Horse Shoes, made from Refined American Iron.

Four sizes being made, it will be well for those ordering to remember that the size of the shoe increases as the numbers—No. 1 being the smallest

WM. F. BURDEN, Agent
Troy Iron and Nail Factory, Troy, N. Y.

NEW ENGLAND RAILROAD MUTUAL FIRE INSURANCE CO.

Office, No. 11 Railroad Exchange, Boston.

THIS Company, composed of Railroad Corporations, insures on the Mutual principle, against loss by Fire, BUILDINGS, BRIDGES, ROLLING STOCK, and other property in which the members have an insurable interest.

DIRECTORS:

S. Hooper, Stephen Fairbanks, Wm. A. Crocker, Uriel Crocker, Wm. Minot, Jr., I. M. Spelman, Charles L. Putnam, S. H. Walley, Waldo Higginson.

WALDO HIGGINSON, President.

CHARLES G. HOBART, Secretary.

LACKAWANNA IRON AND COAL COMPANY, SCRANTON, LUZERNE CO., PA.

BY the completion of the Delaware, Lackawanna and Western Railroad, this Company are enabled to obtain the Magnetic Ores from the most celebrated mines in New Jersey, which used in combination with their native ores, produce a quality of iron not surpassed.

These works have been greatly enlarged the past year, and are, therefore, prepared to execute orders promptly for RAILROAD IRON of any pattern and weight, Car Axles, Spikes, and Merchant Iron. They have on hand patterns for T rails, of the following weights per lineal yard, viz:—25, 30, 36, 40, 45, 50, 60, 62, and 75 lbs.

Samples of Rails and Merchant Iron may be seen at the office of the Company, 25 William st., New York

Address S. T. SCRANTON, President, SCRANTON, Pa.,

or THEO. STURGES, Treasurer, 25 *William st.*, NEW YORK.

40tf

NEW YORK METALLIC CAR SPRING COMPANY.

TRUSTEES:

CHARLES MINOT, *President.*

COURTLANDT PALMER, *Vice President.*

CHARLES ELY, *Treasurer.*

P. G. GARDINER.

THOS. B. NELSON.

MANUFACTORY AND SALESROOMS:

Nos. 316, 318, 320, 322 and 324 West 26th Street.

OFFICE, 239 BROADWAY, NEW YORK,

WHERE the Company will have a suite of rooms, one of which will be fitted up for the accommodation of gentlemen connected with Railroads and Car building, which we should be pleased to have them make their office during their stay in the city, having their letters directed to our care, and affording them every facility for correspondence, etc., free of expense.

During the Summer and Fall of 1856 and the Winter last past, this Company received a large number of orders for Springs which they were unable to fill, owing to a want of Steel of a quality such as is required for their manufacture Large orders were sent to Europe for it which are now coming to hand.

We are now able to supply work in large quantities.

The success of these Springs has now been fully established; they have been in constant use upon a large number of roads for the past year. The test during the past winter was a severe one, but their reliability has been even greater than was anticipated. They are now confidently believed to be eminently SUPERIOR *to any other Spring now in use for Railroad purposes.* Parties who have delayed ordering for the purpose of waiting to hear of their success on other roads, need hesitate no longer, as their utility is now fully established. Orders are now solicited, stating at the same time the kind, size and weight of cars to which they are to be applied.

Address communications to

RICHARD VOSE, Secretary, N. Y.

VENTILATION.

THE undersigned has devised and patented the only system of ventilation for *Buildings, Vessels,* RAILROAD CARS, &c., by which spontaneous ventilation can be effectually carried out; and is willing to dispose of the same to parties desirous of purchasing at a reasonable price.

Address HENRY RUTTAN, *Cobourg, Canada.*

Railroad Iron and Chairs.

The Lackawanna Iron and Coal Co. are now prepared with increased facilities to contract for Rails and Chairs at their works at Scranton, Penna.

Address S. T. SCRANTON Prest. at Scranton, or at the office of the Company in New York, 25 William st.

26tf

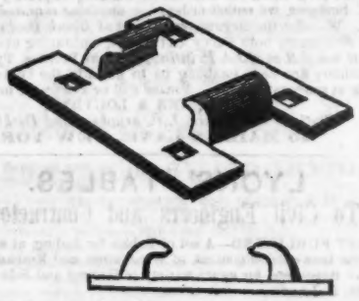
NEW YORK Wrought Iron Railroad Chair COMPANY.

OFFICE, 8 BROADWAY, CORNER BEAVER ST.,

(OPPOSITE THE BOWLING GREEN,)

NEW YORK.

ALEX. FREAR, SEC'Y AND TREAS'R. JACOB ROWE, PRESIDENT.



THIS Company is prepared to receive orders for the manufacture of WROUGHT IRON RAILROAD CHAIRS of the best material, on a new and superior model, and by improved patented machinery.

The thickness of the Lips of the Chair increases through the bend, where the greatest strength is required, and diminishes towards the edge;—so that a less weight of metal may be used, and a strength acquired equal, if not superior, to that of a heavier Chair of uniform thickness.

Our arrangements are now complete for executing work promptly, and all orders from responsible parties will be filled on short notice.

Our manufacture of Chairs are used by the following companies:

New Jersey Central Railroad Company,
North Carolina Railroad Company,
Grand Trunk Railway Company,
Michigan Southern and Northern Indiana Railroad Company,
Mississippi Central Railroad Company,
Panama Railroad Company,
Galveston and Red River Railroad Company,
Illinois Central Railroad Company, etc., etc.

Address—ALEX. FREAR, *Secretary and Treasurer,* 8 BROADWAY

RAILROAD SPIKES.

WROUGHT IRON

Chairs and Fastenings.

THE CALVERT IRON & NAIL WORKS continue to manufacture with increased facilities, HOOK & FLAT HEAD RAILROAD SPIKES, and WROUGHT CHAIRS and FASTENINGS of all patterns, also CUT NAILS, BOILER RIVETS, BOLTS, SHIP and BOAT SPIKES.

Long experience in the manufacture of these goods enables them to produce an article of superior quality and finish. They are in use upon a large number of roads in the country and are highly approved.

Orders filled promptly, and at the lowest prices.

J. HOPKINSON SMITH, *Baltimore, Md.*

☞ Please direct the name in full. 16tf

PATENT HAMMERED RAILROAD, SHIP, AND BOAT SPIKES.

THE ALBANY IRON WORKS

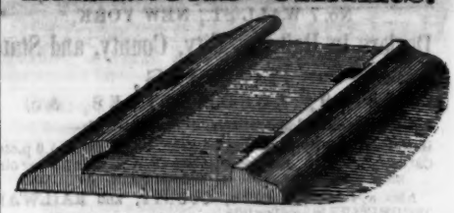
HAVE always on hand, of their own manufacture, a large assortment of RAILROAD, SHIP, and BOAT SPIKES from 2 to 12 inches in length, and of any form of head.

From the excellence of the material always used in their manufacture, and their very general use for railroads and other purposes in this country, the manufacturers have no hesitation in warranting them fully equal to the best SPIKES in market, both as to quality and appearance. All orders addressed to the subscribers at the works will be promptly executed.

J. H. JACKSON, *Agent,* Albany Iron Works, Troy, N.Y.

The above Spikes may be had at factory prices of Erastus Corning & Co., Albany; and B. Pratt & Brother, Baltimore, Maryland.

RAILROAD CHAIRS.



THE ALBANY IRON WORKS, TROY, N. Y.,

INVITE attention to their new pattern SOLID LIP Wrought Railroad Chair, which has been favorably received, and is now being laid upon some of the leading railroads of this country.

With every facility for manufacturing these as well as the ordinary form of Chairs, they solicit a trial of them. Quality and workmanship guaranteed. Orders addressed to the subscriber, at the works, will be promptly attended to.

J. H. JACKSON, *Agent.* TROY, N. Y.

Or ERASTUS CORNING & CO., Albany, N. Y.

RAIL ROAD CAR FINDINGS,

BRIDGES & BROTHER,

64 Courtlandt Street, N. Y.

WHEELS AND AXLES,

JAWS, BOXES, AND CASTINGS FITTED.

WROUGHT NUTS, BOLTS AND WASHERS

ENGINE AND CAR SCREW BOLTS, all SIZES,

COACH LAG AND TELEGRAPH SCREWS,

LOCOMOTIVE ENGINE LANTERNS,

From the BEST Manufacturers and at their Prices.

CAR, HAND and SIGNAL LANTERNS,

COTTON DUCK, FOR CAR COVERING,

of any required width to 124 Inches.

ENAMELED HEAD LININGS,

The best article made in this country.

PLUSH and CURLED HAIR.

HAND CARS AND BAGGAGE BARROWS.

PASSENGER, FREIGHT-CAR, AND SWITCH LOCKS, DOOR KNOBS AND BUTTS.

BRASS and IRON WOOD SCREWS.

BRASS AND SILVER PLATED TRIMMINGS

For Windows and Seats.

VARNISH, COACH JAPAN, AND GLUE,

Paints, Varnish and Glue Brushes.

SILVER PLATED AND WHITE METAL LETTERS.

ENGINE and SIGNAL BELLS.

ANTI-FRICTION, OR BABBITT METAL,

PORTABLE FORGES & JACK SCREWS

HEMP PACKING, AMERICAN, RUSSIA AND ITALIAN.

CONDUCTOR'S BADGES, AND BAGGAGE CHECKS

Iron Bronzed and Brass Hat Hooks.

VENTILATORS AND WHITE METAL RINGS,

And all other Articles pertaining to Cars.

ALBERT BRIDGES, } Late Davenport & Bridges, Car Manufacturers, Cambridgeport, Mass

ALFRED BRIDGES, } Late Davenport, Bridges & Co, Fitchburg, Mass.

Railroad Spikes and Wrought Iron Fastenings.

THE TROY IRON & NAIL FACTORY,

EXCLUSIVE OWNER OF ALL

HENRY BURDEN'S PATENTED MACHINERY

FOR MAKING SPIKES,

HAVE facilities for manufacturing large quantities upon short notice, and of a quality unsurpassed.

Wrought Iron Chairs, Clamps, Keys and Bolts for Railroad fastenings, also made to order. A full assortment of Ship and Boat Spikes always on hand.

All orders addressed to the Agent at the Factory will receive immediate attention. WM. F. BURDEN, Agent, Troy Iron and Nail Factory, Troy, N. Y.